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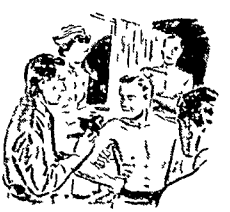


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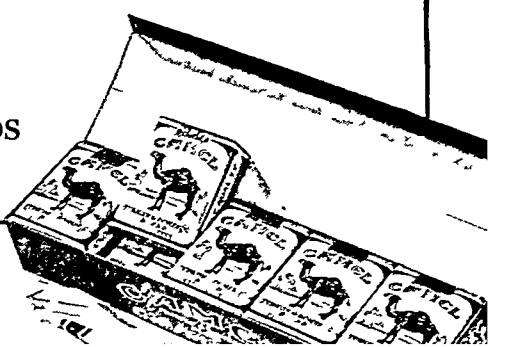
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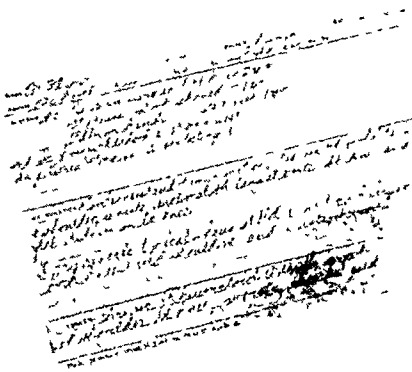
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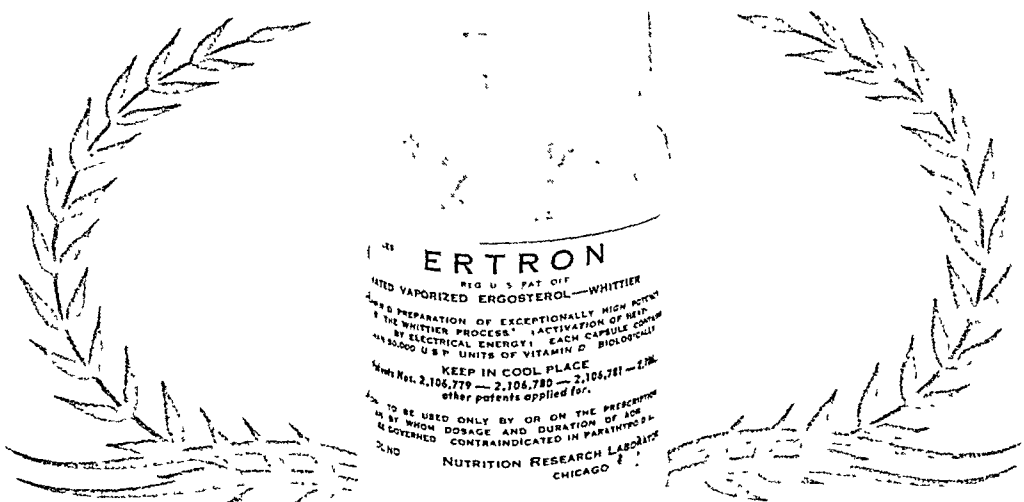
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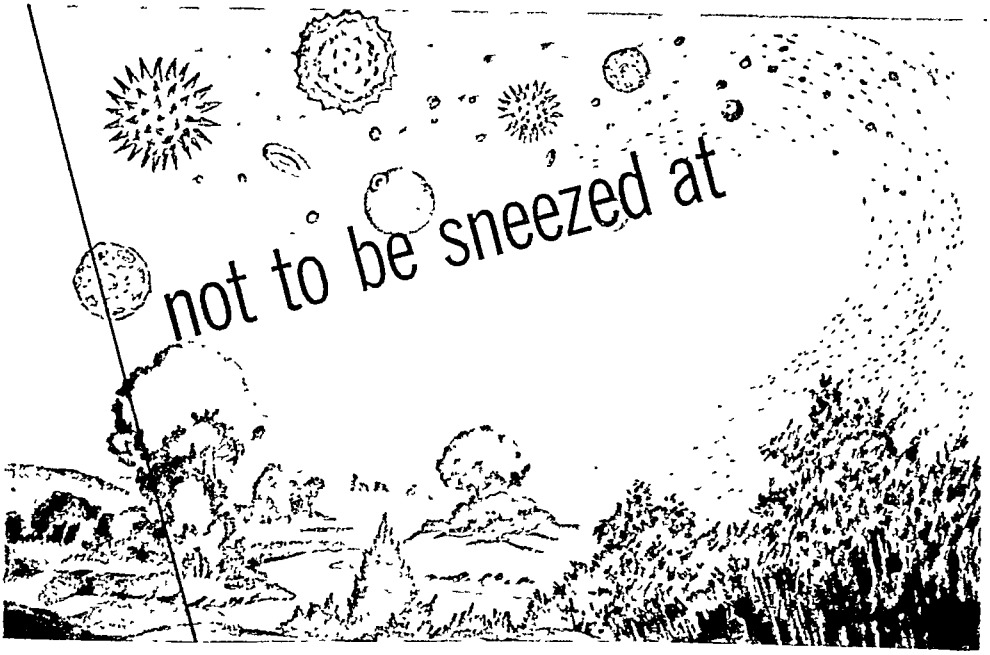
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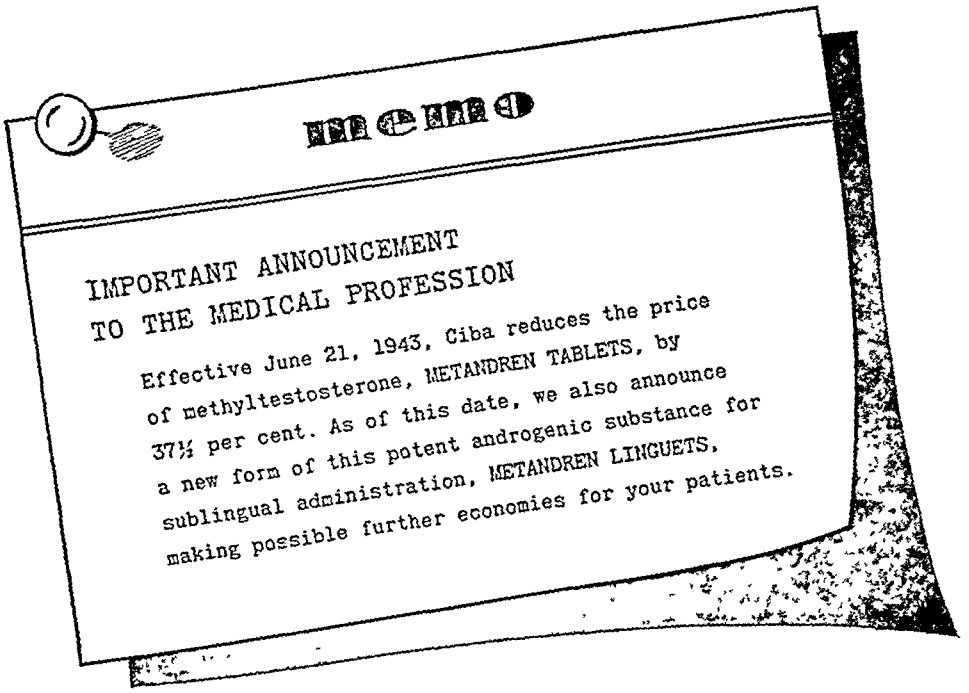
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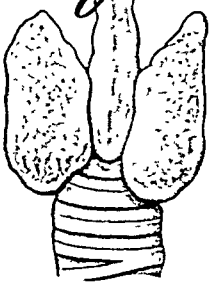


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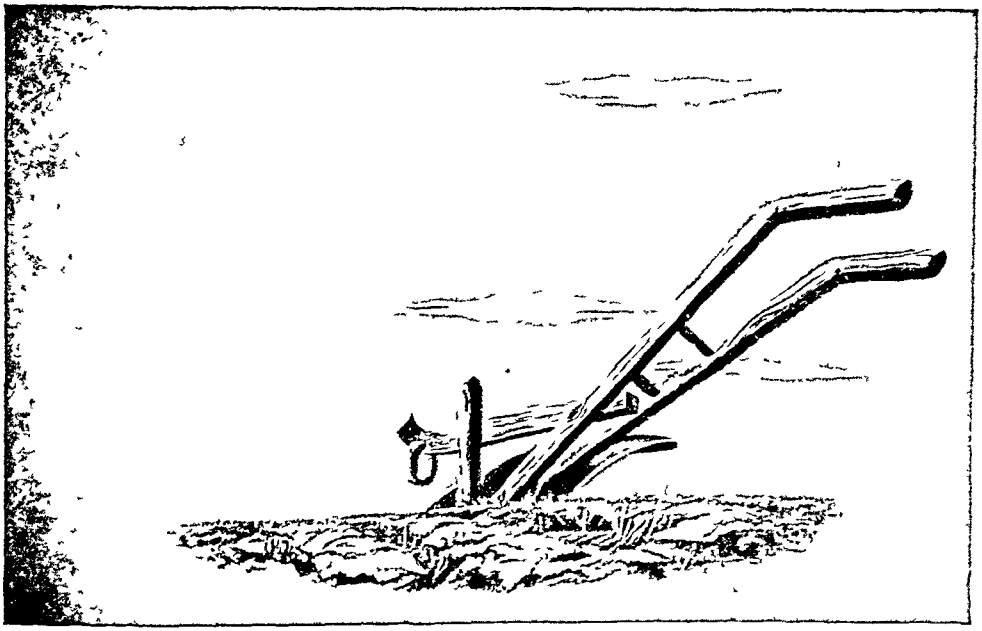
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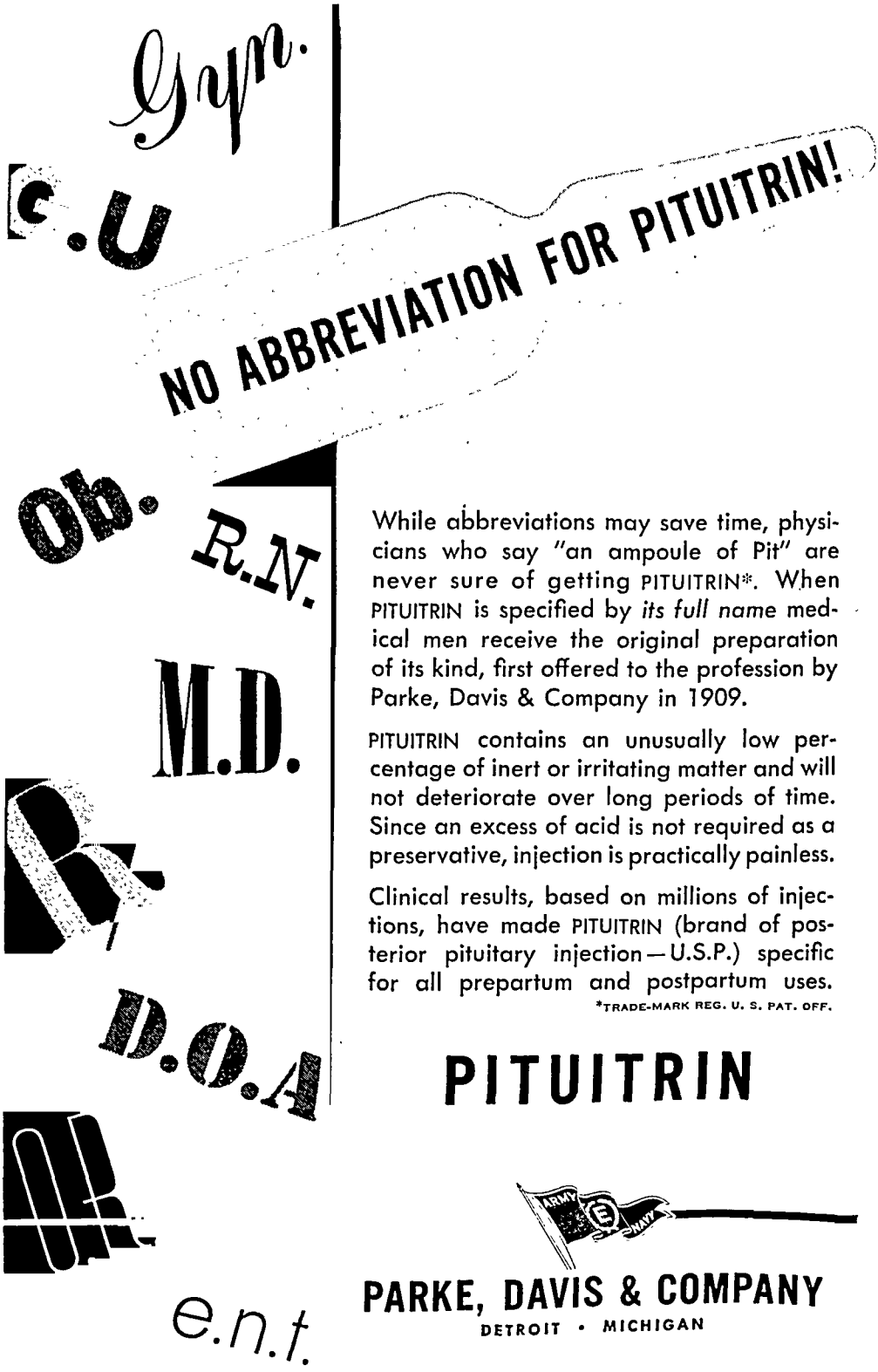
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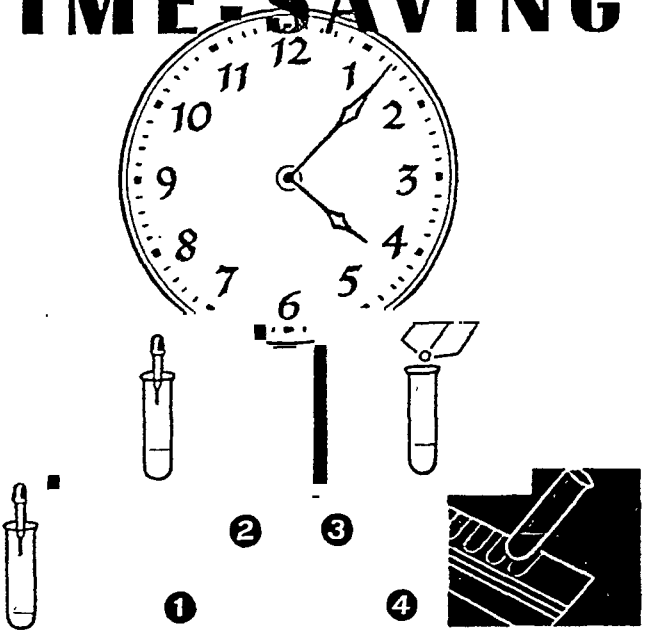
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THE RISING CURVE OF PEPTIC ULCER IN WAR

"Peptic Ulcer ranks high as a cause of disability for military service. It . . . leads all other digestive diseases as a cause for discharge from the Regular Army."

Kantor, J. L.: Digestive Disease and Military Service, Jnl. A. M. A., Sept. 26, 1942.

THE increased incidence of peptic ulcer among the armed forces, defense workers and civilians today confronts medicine as a major problem.

Of the various types of therapy used to control this problem none has proved itself more valuable than CREAMALIN, brand of aluminum hydroxide gel.

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- Mildly astringent; may reduce digestive action, thus favor clot formation
- Demulcent; gelatinous consistency affords protective coating to ulcer

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THE RISING CURVE OF PEPTIC ULCER IN WAR

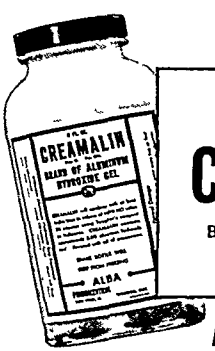
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Modern non-alkaline therapy for peptic ulcer and gastric hyperacidity

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NEW YORK STATE JOURNAL OF MEDICINE

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VOLUME 43 JULY 1, 1943 NUMBER 13

Editorial

The American Ferment, II

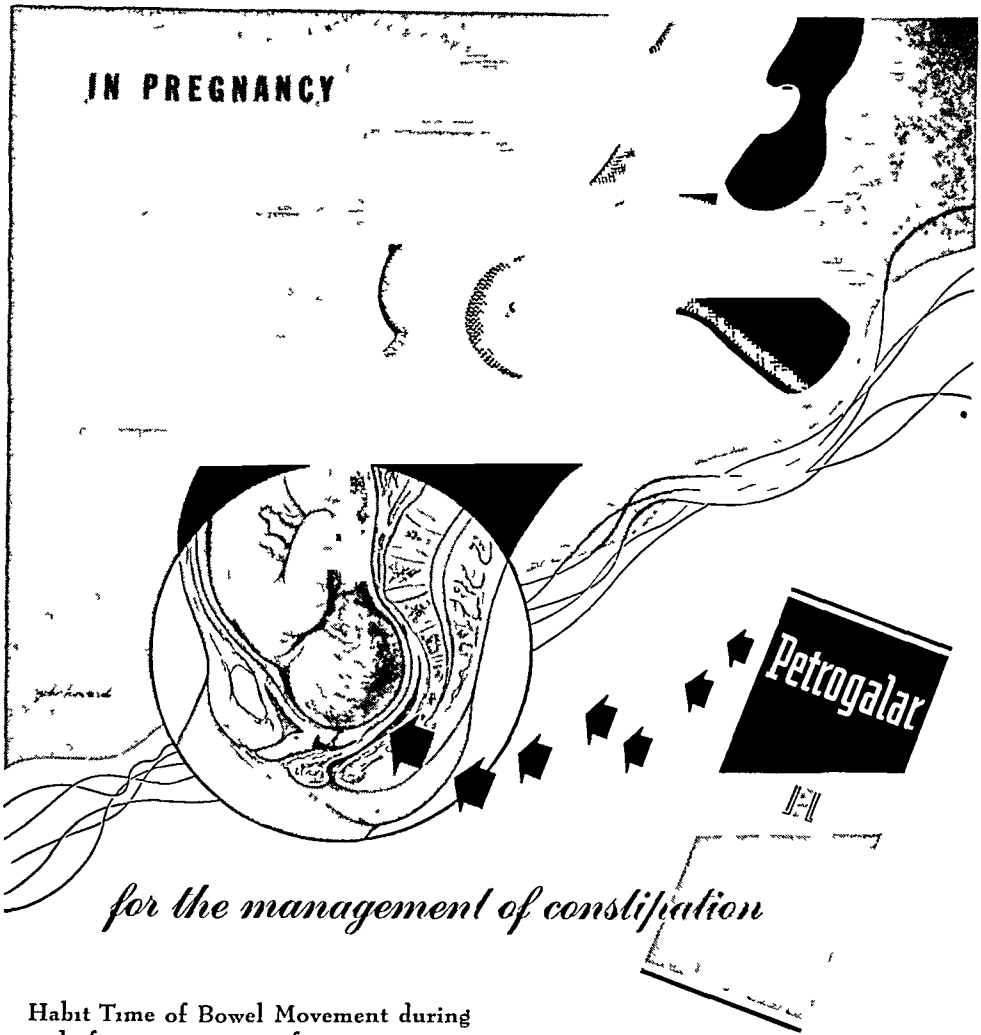
The dominant note in American life today is the pursuit of security. On battlefronts scattered over the whole world, in the deliberations and acts of legislative bodies, in the daily journals, the pursuit follows its bloody, windy, or wordy course toward a better world for men to live and die in.

The function of the new Planning Committee for Medical Policies of the Medical Society of the State of New York is to study trends in American life in order to advise the Society how medical policies and practice may best serve the public interest. The Committee commences its work at a time when there is before both houses of Congress an "American Beveridge Plan" in legislative form designed to provide postwar social security from the cradle to the grave. The proposal covers the major economic hazards of the average American throughout his lifetime. It is said to assure medical care and hospital service without interfering with free choice of patient, doctor, or hospital. The sponsors of the bill are Senator Wagner of New York, Senator Murray of Montana, and Representative Dingell of Michigan. The bill is said to call for a payroll tax of 12 per cent divided equally between employers and employees, with administration of the medical aspects of the national health and hospital care by the U.S. Public Health Service.

Many will recall that in 1937 the question of adoption of medical expense indemnity insurance was before the House of Delegates of the Society. The committee which sponsored the report laid down the thesis that it was the duty of the lay public to develop plans to finance medical care and that it was the province of organized medicine to maintain the standards and quality of such care.[1] Apparently the public, through its elected representatives, is preparing to do just that through the medium of social security legislation.

Professor Chas. E. Merriam, addressing the A.M.A. delegates at Chicago on June 7, said of the "American Beveridge Plan" that it

> ". . . . was based on the proposition, backed up by present indications, that the national income would attain and maintain a level of about $120,000,000,000 a year.
>
> "We literally stand at the gates of an age of plenty, key in hand, fumbling at the lock," Professor Merriam declared. "General objectives have been outlined, but we now face the patient preparation of more detailed plans and specifications, programs of legislation and administration, national, state, and local, by public and private agencies.
>
> "The winning of the peace in fullest measure calls for unity and good-will—the price of victory in war and peace alike.
>
> "If we can follow, and I believe we can, the way indicated alike by our ideals and our interest, we can anticipate an economy which puts a sound floor under social security, including health, housing, education, employment, and that has no ceiling above on initiative, enterprise, and achievement.
>
> "It will be found that our American traditions of justice, equality, liberty, and the pursuit of



for the management of constipation

Habit Time of Bowel Movement during and after pregnancy is of paramount importance to the patient's well-being and comfort. Pressure of the fetus upon the intestines, and lack of exercise are factors which induce constipation during pregnancy, postpartum and lactation.

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Epidemic Keratoconjunctivitis

For reasons somewhat intangible, diseases that previously have been dormant and infrequent sometimes become epidemic and sweep a nation. In the case of generalized infections or infections involving a secretory or excretory tract, such as the respiratory or gastrointestinal systems, this picture is not [illegible] but we do not customarily associate such epidemic infections with a localized organ like the eye. Yet the disease now known as epidemic keratoconjunctivitis is just such an infection, which, beginning on the West Coast,[1] speedily traveled throughout the country, soon making its appearance in the East.[2] Although it started as an industrial disease, this eye infection is no longer so limited.

As its name implies, the cornea as well as the conjunctiva is involved in the great majority of cases. The ocular manifestations are pronounced edema of the lids and conjunctiva with bulbar chemosis, follicular conjunctivitis, and corneal opacities. Ocular discomfort is prominent and lacrimation is excessive. A preauricular lymph node is frequently enlarged, as, in many cases, are the submental and anterior cervical nodes. Conjunctival smears and scrapings reveal a preponderance of mononuclear cells, not polynuclear leukocytes. Cultures are sterile for bacteria, but a virus has been incriminated. Serums of convalescent patients have been shown to contain neutralizing substances for this virus. Because of this finding, convalescent serums have been used therapeutically with some promise of success.[3]

A disease with frequent corneal involvement must be treated with circumspection. Isolation and quarantine are invaluable prophylactic measures and must be immediately instituted to safeguard the contacts in the community, industrial or otherwise. This is all the more important since as yet there is no specific cure, with the possible exception of convalescent serum, which is difficult to obtain. The importance of immediate diagnosis is essential to early quarantine, which is the only certain safeguard for the prevention of epidemic keratoconjunctivitis.

[1] Hogan, M. J., and Crawford, J. W.: Am. J. Ophth. 25: 1059 (Sept.) 1942.
[2] Sanders, M.: Arch. Ophth. 28: 581 (Oct.) 1942.
[3] Braley, A. E., and Sanders, M.: J.A.M.A. 121: 999 (March 27) 1943.

Breast Milk Deficiencies

For centuries it has been generally accepted that breast milk is the ideal food for the human infant. This tradition was unchallenged until the advent of metabolism into the field of pediatrics. In recent years the caloric, water, protein, mineral, and vitamin requirements for optimal infantile growth have been rather accurately calculated and recorded.[1] It must constantly be remembered that lactation is a reflection of the maternal diet, the adequacy of which determines the value of the milk so produced.

Breast milk is low in protein content. About 8 per cent of its calories are derived from that important fraction. Premature and immature infants often cannot maximally thrive on the limited protein quota of human milk.[1] For this reason protein reinforcements from other sources are often added, either in the form of dehydrated milk or by admixture with some other form of cow's milk. That human milk, like cow's milk, is very poor in iron content has long been known. The vitamin content of human milk may also be insufficient for the needs of a rapidly growing organism.[2] A most important recent contribution is the demonstration that calcium utilization by the premature baby may be subnormal on a diet of human milk.[3] On the other hand, the retention of calcium is tremendously improved and becomes optimal when cow's milk is the source of calcium and phosphorus.[3] These minerals are indispensable for the normal growth of the skeletal system and other tissues. Like a favorable nitrogen balance, high calcium and phosphorus retentions are indices of good nutrition.[3]

It should not be inferred that breast milk is not a good food for the human infant. Nor should the conclusion be drawn that cow's milk, skillfully blended by the pediatrician, is superior for the general metabolic needs of infants. It is wise, however, to be cognizant of the limitations of human milk in certain instances, as in a rapidly growing organism such as the premature or immature infant. These limitations can be overcome by the addition of the necessary ingredients indicated by recognized deficiencies.

[1] Holt, L. E., and McIntosh, R.: Holt's Diseases of Infancy and Childhood, Eleventh Edition, New York, D. Appleton-Century, 1940, pp. 133–163.
[2] Knott, E. M., Kleiger, S. C., and Schultz, F. W.: J. Pediat. 22: 43 (Jan.) 1943.
[3] Benjamin, H. R., Gordon, H., and Marples, E.: Am. J. Dis. Child. 65: 412 (March) 1943.

happiness are not obstacles to prosperity but its essential conditions, underlying all genuine advance. We can unite security and freedom."[2]

To which General Fred Rankin added that organized medicine

". . . . cannot disregard the growing interest of the public, the government, and various lay groups in the administration of medical care. Nor," he added, "can we afford to engage in a struggle for domination.

"The solution to these problems and the attainment of our objectives," he asserted, "do not lie in that direction. They can be approached more expeditiously by a willingness to share their responsibilities and a readiness to cooperate in their consideration.

"The importance and urgency of these various problems commend the immediate establishment by this association of suitable agencies for their investigation. In the institution of these agencies the purpose and vast significance of their function, the sharp delineation of their problems, and the need for their collaboration with others should be emphasized."[2]

But what is social security? Homer Folks, writing in the *S.C.A.A. News*, says in part:

"The phrase 'social security' is a recent arrival. It has no one clear-cut definition. It would seem that it should mean 'Individual Security Through Social Action.' A large part of individual insecurity obviously arises from causes beyond the individual's control.

"Some men are born poor; some achieve poverty; and some have poverty thrust upon them; and the last is by far the largest group. Obviously society may operate in various ways in reducing individual insecurity. . . . .

"But social insurance is only one form of social security. The *Beveridge Report* is in fact entitled 'Social Insurance and Allied Services.' What are some of these 'allied services'? How valuable are they, how long have they existed, how dynamic are their contributions to social security, how susceptible are they to further extensions? . .

"Clearly, nothing has promoted social security, dependability of income, personal adequacy, and efficiency in meeting the responsibilities of life more than the prevention of smallpox, tuberculosis, diphtheria, syphilis, catastrophes related to childbirth, pneumonia, and the like. No provision for the care of the sick and the maintenance of widows and orphans can compare for a moment, as a measure of social security, with the prevention of disease. We face here a fundamental difference in philosophy and in method, which seems to have been very often greatly underestimated, or even overlooked, by the promoters and framers of social insurance measures. The forgotten factor is the dynamic value of preventing misfortune, loss of income-producing capacity, and social insufficiency, instead of, to a degree, regarding such losses as inevitable and devising measures for spreading their incidence over large groups and periods of time.

"It is not fanciful to see an 'insurance psychology' which loses sight of that valuable distillation of human experience—an ounce of prevention is worth more than a pound of cure. It is, of course, not a question of 'either or'; it is a question of practicabilities and possibilities of both at any given time. . . . .

"Certainly one of the most important tests by which all these social security plans should be judged is as to how, and to what extent, they promote public health. It must be admitted that, on preliminary reading, both the British and the American plans are, as compared with their other subject-matter, definitely vague as to the all-important subject of public health. The term 'public health' may be considered as including mental hygiene, though that term does not seem to appear in either report. Mental disorder certainly calls for a lot of hospital care, roughly equivalent to all other types of hospital care put together. It breaks up more families, destroys more individual efficiency, spoils more personal plans, and causes more social wreckage than any other type of illness, possibly more than all other types put together. The fullest application of our all too scanty knowledge of the causation, possible prevention, and suitable diagnosis and treatment of mental disorders should certainly have a large place in plans to promote individual security through governmental action."[3]

The participation of the State of New York in medical health and welfare services as a cooperative enterprise with voluntary agencies and the medical profession of the state has anticipated much of what is now being proposed as a national social security plan. The extent of that participation was shown by a previous editorial in this JOURNAL.[4] It is to be expected that the exigencies of a nation at war will require the extension of already existing and proved enterprises, a widening of the field of voluntary medical indemnity insurance, a fluid system of private practice prepared to integrate itself into the larger social mechanisms, the blueprints of which are now being introduced in the Congress.

---

[1] New York State J. Med. 37: 1210 (July 1) 1937.
[2] N.Y. Times, June 8, 1943.
[3] S.C.A.A. News, Vol. XXXII, No. 7, April, 1943.
[4] New York State J. Med. 43: 610 (April 1) 1943.

SUMMARY OF PRESENT TREATMENT OF WOUNDS AND BURNS

CAPTAIN REYNOLDS HAYDEN, MEDICAL CORPS, U.S. Navy

THE mobile character and greatly increased aerial activity of the present war has necessitated considerable change in medical procedure in combat areas. While the first emergency treatment of casualties presents the same problems as heretofore—control of hemorrhage, treatment of shock, and prevention of infection—wounds of the present war are frequently multiple, severe and extensive, predisposing to infection, and accompanied by severe shock. Medical units in forward areas must now be mobile and prepared to do what was previously considered "hospital surgery" at a main dressing station near the firing line. Surgeons attached to these units must be qualified to do traumatic surgery of any part of the body.

Effects of Projectiles

The effects of high velocity projectiles upon the body tissues are not generally appreciated by the civil surgeon. In the immediate vicinity of the explosion of an aerial bomb, the bomb fragments have a velocity of some 5,000 feet per second. These fragments are irregular in shape and size and frequently cause multiple or great gaping wounds with extensive tissue destruction.

The modern high velocity rifle bullet produces a variety of wounds. Those of entrance and exit may be small, and the wounds readily heal. If bone is struck, however, the bone fragments act as projectiles and the wound of exit is large, or there is great destruction of the deeper tissue. Ricocheting bullets and metal fragments cause the most severe and revolting wounds.

Emergency Treatment

The majority of casualties need $1/2$ grain of morphine promptly. More than this amount is likely to increase the symptoms of shock and may depress the respiratory center. Intravenous injections may be used when relief of pain is urgent. An intravenous dose of $1/6$ to $1/4$ grain, diluted to at least 1 cc. with sterile water and injected over a period of a minute or more, will reduce pain almost immediately. Morphine should not be used in head injuries unless they are complicated by extensive injuries elsewhere. It should never be used routinely.

Our conception of wound infection has changed during the present war. We now know that many of the more virulent organisms are not introduced into a wound by the missile but are introduced when the wound is being dressed. The greatest danger of infection is from the fingers, nose, or mouth of the person who first inspects and treats the open wound.

At the first dressing, hemorrhage is controlled, the wound grossly cleaned, and powdered sulfonamide sprinkled or poured into the wound. A sterile occlusive dressing is then firmly applied. The severely wounded are given 2 Gm. of sulfadiazine internally immediately after injury followed by one Gm. every six hours as indicated. First aid packets now contain a package of crystalline sulfanilamide and another of sulfadiazine tablets for this purpose.

We have found that gauze moistened with saline or azochloramid solution gives the best results as a wound dressing because free drainage is permitted. Dry dressings tend to trap exudate beneath an impervious layer of caked powder while vaseline gauze tends to dam back the exudates, the sulfonamides losing their potency in each case.

Naval experience has definitely shown the value of the sulfonamides locally in the prevention of wound infection. Crystalline sulfanilamide has been quite satisfactory for this purpose. Sulfathiazole has been unsatisfactory because it cakes, forms a plastic cast, and prevents drainage. Microcrystalline sulfathiazole, however, is more satisfactory locally than sulfanilamide.

Recent investigations have indicated that the sodium salts of sulfadiazine or sulfathiazole, because of their much greater solubility, may be more efficacious when used locally for prevention of wound infection than other sulfa preparations.

In deep wounds, a sulfonamide suspension is injected into the wound pocket.

No attempt should be made to remove metal fragments from wounds at the first dressing unless the fragments are readily accessible. The incidence of cellulitis or severe infection is apparently not increased by even large metal fragments.

Except in superficial wounds, it is imperative that no wound closure be attempted at the first dressing. The great majority of wounds which have received primary suture at the first aid station become badly infected. Following local treatment, sutures may be placed, left long, and tied after the third day if there is no infection, or secondary closure may be done later when it is indicated.

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 4, 1943.

Doctors' Households Urged to Set Example in Waste Fat Salvage

The importance of saving waste household fats in order to salvage their glycerin content should be apparent to every physician. The doctor's kitchen, like that of every other family in town, can supply at least a tablespoonful of fat a day—from meat drippings, from rendered trimmings, or fat skimmed from the soup kettle and no longer good for food. If that much were retrieved in every household and taken to the meat stores which collect the fat for the renderers, the amount saved would exceed the national goal of 200,000,000 pounds for 1943.

Glycerin is indispensable in the manufacture of munitions because it is the source of both nitroglycerin and dynamite, the first of which provides the explosives for propellants and the second the means of military demolition. Tanks, ships, and planes last longer because of paints containing glycerin. It is used as an anti-icing fluid for the propellers of fighter and bomber planes. The shock absorbers of jeeps and half-tracks, the recoil mechanisms of big guns, and the firing mechanisms of depth bombs all contain glycerin.

Glycerin has an important place on the medical front, too, in both war and peace. It is one of the best-known and widely used medical materials. There is scarcely a branch of therapeutics in which glycerin does not play a part. An average of more than 3 pounds of glycerin per hospital bed per year is used in our American hospitals. And an analysis of 15,063 prescriptions made prior to the war in a single American city showed that, with the sole exception of water, glycerin was the most-used liquid ingredient.

In military medicine the role of glycerin continues to grow. Even before we entered the war, large quantities were shipped by the American Red Cross to England. In the requests made to organized *medical groups in the United States for medical* supplies, British authorities rated glycerin as equal in importance to surgical instruments.

Practically all the liquid sulfonamides call for glycerin. The war has given increased emphasis also to the long-established value of glycerin itself in burn therapy and surgical treatment, as well as for wound dressings. Dressings can be changed with less discomfort to the patient when they are soaked with glycerin.

The War Production Board is urging all Americans everywhere to help save the fat from which this precious liquid is made. The meat dealer from whom you purchase food will be glad to pay the prevailing rate for the kitchen fats that your household *conserves. The pennies will buy War Stamps*—and ever pound of waste cooking fats turned in will provide enough glycerin to make one-half pound of dynamite or four 37-mm. antiaircraft shells or their equivalents in other badly needed materials. Doctors, set an example in your community: start your household saving waste kitchen fat today!—*Waste Fat Saving Committee*

Reports on Specimens for Pneumococcus Typing

In future, reports from the Division of Laboratories and Research of the New York State Department of Health on pneumococcus type differentiation will be telephoned or telegraphed only on request. While many physicians still wish the assurance provided by typing in order that specific serum therapy may, if indicated, be instituted promptly, the extensive and generally effective use of chemotherapy in the early stages of pneumonia has made supplemental treatment with serum frequently unnecessary. Hence, the procedure of reporting the results of such examinations has been revised to curtail nonessential use of telephone and telegraph services.

If type differentiation is to be undertaken, the importance of collecting sputum prior to the institution of chemotherapy cannot be overemphasized. It is essential, also, that the examination be made as soon as possible. When local approved laboratory service is not available, specimens should be sent by messenger or by mail, special delivery, to the central laboratory in Albany or to the Branch Laboratory, 339 East 25th Street, New York, New York.

DISORDERS DUE TO HEAT

	Heat Cramps	Heat Exhaustion	Heat Stroke ("Sun Stroke")
Symptoms	Conscious patient; temperature normal; pulse normal or fast; skin normal; cramping pains	Conscious patient; subnormal temperature; pulse weak and fast; *skin pale and cold*—"shock" appearance	Unconscious patient; fever (105 F. or higher); pulse very strong and very fast; skin *dry* and very *hot*
Time	Occurs in the early period of a hot spell	After some hours	Usually after second or third day of a hot spell
Age	Any age	Usually in older persons and those with *systemic* disease	More often in older persons, but *may* occur at any age
Treatment	Oral or intravenous use of sodium chloride	Warmth; rest; lay patient down flat; stimulants	Ice bath or ice pack at once
Prevention	Daily use of coated salt tablets and ample water	Daily use of salt tablets and ample water	Avoid exposure to overheating and sun for several days

—*F. J. Elias, M.D., in Minn. Med.*

wounded patients as soon after injury as possible —certainly immediately after arrival at the first casualty station. Transfusions of plasma in this zone will do more to reduce mortality from shock than any other single factor. All members of field medical units should thoroughly understand its administration.

Vasoconstrictive drugs and circulatory stimulants are of little use in the treatment of shock. Recent reports on adrenal cortical extract by the National Research Council state that it has no discernible effect on traumatic or burn shock in man. Bandaging of limbs does no good unless required locally for wounds.

Hospital Treatment of Wounds

Wounds given emergency sulfonamide treatment are usually more or less filled with caked sulfonamide powder when the patient is received in hospital. While they are not sterile and while there may be some necrosis or sloughing, there is rarely any spreading infection or fever. It has been found inadvisable to try to remove this sulfonamide. The wound area should be thoroughly cleaned, the wound irrigated with normal saline solution, and loose and obviously devitalized tissue cut away with scissors. No attempt is made at radical débridement. Reports from the Pacific combat areas state that the local use of sulfonamides plus nonsuture of wounds at first dressing have made radical wound débridement unnecessary. Those treated conservatively may be closed later by secondary suture whereas the others require later skin graft and plastic operations.

On the other hand, recent reports from the Middle East and North African combat areas have stated that wounds packed with sulfanilamide did no better than those without it and that more radical débridement and prophylactic use of antigas serum is necessary to prevent gas gangrene. From what I saw of the efficacy of the local use of sulfonamides in preventing wound infection at Pearl Harbor, I cannot agree that wounds do as well without as with sulfonamide locally. These reports do, however, emphasize recent warnings that the local use of sulfonamides is not a substitute for adequate surgery and that their use alone will not necessarily prevent gas gangrene or other wound infection from developing in deep wounds. For example, wounds caused by fragments of aerial bombs often have a small wound of entrance and extensive damage beneath. These deep wounds must be thoroughly opened, débrided, dusted with sulfonamide powder, and left open for at least three days.

With this treatment, the wounds are relatively painless and become clean in quite a short time.

Specific wound treatment in hospitals may be summarized by anatomic regions:

Head.—If sulfanilamide and sterile dressing were used in the emergency treatment of the wound, operation may be delayed as much as forty-eight hours after injury and the wound still treated as a fresh wound. The most important part of the operation is a thorough cleansing and débridement of the wound tract in the brain. This may contain hair, dirt, grass, and bone fragments. Damaged brain tissue and blood clots are removed by suction and all foreign material carefully washed or picked from the wound. It is then gently irrigated with large quantities of sterile saline solution, all bleeding controlled, the wound tract filled with sulfanilamide powder, and the external wound closed. Sulfanilamide is most effective for open wounds of the head. Symptoms of cerebral irritation, characterized by Jacksonian seizures, have followed the insertion of sulfathiazole and sulfadiazine in brain wounds. The missile should be removed if it is reasonably accessible, but if not, it should be left alone.

In head wounds operated upon more than forty-eight hours after injury, the wound tract should be cleaned and débrided as just described, the entire wound filled up to the skin with powdered sulfanilamide, and the tract loosely packed with sterile vaseline gauze or gauze strips surrounded by rubber tissue.

Chest.—Wounds of the chest vary considerably. Through-and-through bullet wounds may cause practically no symptoms, the bullet passing through the chest and leaving only small wounds of entrance and exit. Small shell fragments may traverse the lung and lodge in the chest wall of the opposite side. Patients with shell fragments in the lung may spit blood for a day or two and have no other symptoms. Varying degrees of hemothorax or hemopneumothorax are frequent. These patients usually run a fever, with a temperature of 101 or 102 F., perhaps 104 F., but they rarely develop infection and should be treated conservatively even though empyema may seem to be developing. Aspiration is not done except for respiratory embarrassment or for diagnostic purposes. In all our cases, the temperatures gradually fell to normal as the blood was absorbed. No empyema developed.

In case the wound is large, it should be rapidly cleaned, débrided as necessary, easily accessible foreign bodies should be removed, and the blood should be sucked from the pleural cavity if possible. Sulfonamide powder is then freely sprinkled or sprayed in the pleural cavity and the wound closed tightly.

Abdomen.—If there is doubt of intra-abdominal injury, it is better to do an exploratory lapar-

Because of their importance, emergency treatment of wounds may best be summarized by regions:

Head.—The majority of penetrating wounds of the head, although not immediately fatal, will result in death unless the wounds are properly treated from the beginning. All wounds of the scalp should be considered as serious. Even without associated fracture, these wounds are dangerous because of possible infection. Final suture and closing of scalp wounds should be done only in a properly equipped operating room where associated skull fracture or brain injury can be properly treated if present. If the circumstances are such that the patient cannot be transported within a reasonable time to a place where complete operating facilities are available, then as thorough a surface operation as possible may be done in the field dressing station. While this leads to primary healing of the scalp wound without treatment of the possibly coexisting skull fracture or brain injury, these can be safely treated later if the scalp wound has healed. There is less danger of infection if the scalp wound is not left open indefinitely.

Wounds of the face are an exception to the rule against primary suture. They are usually not deep, can be easily cleaned, and may be sutured without tension. Because of the excellent blood supply, primary healing usually results. Suture is especially recommended for wounds of the mouth. These frequently give excellent results from primary wound suture. In case of wounds of the upper eyelid, it is better, in addition to suturing the wound itself, to suture the margins of the upper and lower lids together with a few interrupted sutures to prevent lid contracture until the patient can be properly treated by a plastic surgeon. The technic is mechanical cleansing, freely sprinkling or spraying with sulfonamide powder, preferably suture with fine, alloy-steel wire, and applying a pressure dressing.

Chest.—These wounds permit air to rush in and out of the pleural cavity, cause marked shock and death, and must be promptly closed if the patient is to live. They may be closed with a large pad of gauze from the first aid packet, though moist gauze is better. If neither of these is available, the wound must be quickly closed with anything obtainable, the man's shirt, an ordinary thread and needle, etc.

Cutaneous emphysema is frequently noted in areas near the thoracic wound where fine crepitus may be detected. This is comparatively unimportant, for the air usually originates from outside the lung.

Emphysema in the region of the neck indicates that gas bubbles have penetrated into the mediastinum where they induce dyspnea, circulatory disturbances, and early death unless relief is given. Puncture is of no avail in these cases and only an extensive incision in the neck will adequately relieve the condition.

The outlook is more favorable if the air has escaped from the lungs and gathered in the pleural area. In this case, tension needs to be watched for immediate treatment if necessary. Too much tension is characterized by intense dyspnea and tense auxiliary respiratory muscles. The patient seeks relief by throwing his arms about. Only a small opening, a small puncture, is required to relieve this condition. Permanent drainage may be obtained by leaving the puncture-needle in position for twelve to twenty-four hours or longer. Thoracotomy may later become necessary but is preferably not attempted in the field.

In treating chest wounds, care must be exercised not to induce an open pneumothorax by injuring the parietal pleura. Simply cleanse carefully and apply a sterile dressing. Should pressure rise rapidly in a closed pneumothorax, air may be aspirated from the pleural cavity by simple puncture in the absence of a pneumothorax apparatus. Removal of foreign bodies should not be attempted until the patient reaches a hospital. Both British and American reports emphasize the necessity for conservative front line thoracic surgery.

An open pneumothorax should be converted to a closed pneumothorax at once. Difficulties arise when an open pneumothorax is first discovered upon change of dressings if no preparations have been made to meet this possibility. A wounded man who is able to breathe adequately in a watertight, well-adjusted bandage may die during the change of dressing.

Abdomen.—Patients with abdominal wounds require early operation or they will develop a fatal peritonitis. The wounds should be freely sprinkled with powdered sulfonamide and the patient evacuated to hospital as soon as possible. Too much time should not be wasted trying to overcome shock before evacuation. If it is necessary to operate on such cases in the field, they should preferably not be evacuated for at least four days postoperatively.

Treatment of Shock

Shock is the number one factor common to all war casualties. Treatment should start before its onset. Waiting for the clinical picture to develop before instituting treatment invites disaster.

The best field preventive of shock is blood plasma. It should be given to all seriously

cases in which the patient is in good condition and when adequate operative facilities are available, amputation with flap and primary suture is perhaps justified. The vast majority of such patients, however, are received under adverse circumstances. In them, a guillotine type of operation is usually advisable, all structures being cut across at the same level and the wound treated like any other large open wound. Later, an attempt must be made to cover the bone end with soft parts, or reamputation should even be done if necessary.

Skin Grafts.—The use of sulfonamides alone does not necessarily clean up a granulating wound surface for skin graft. Reports from the southwest Pacific state that the best results are obtained by sprinkling the wound with powdered sulfanilamide, covering this with gauze saturated with 1:500 solution of azochloramid in glyceryl triacetate, covering this, in turn, with gauze dressings saturated with normal saline solution, and bandaging with an elastic pressure bandage.

The dressing is kept moist with saline solution injected into the dressing through catheters. Wounded extremities should be elevated. This dressing is changed once a day. After forty-eight hours, the granulating surface is usually clean, firm, and red. Third-degree burns should be grafted as soon as they are uninfected, usually four to six weeks after injury. Paper-thin Theirsch or split-thickness grafts are superior to pinch grafts, healing being more rapid and complete and the end results better.

Anesthesia.—Spinal anesthesia is poorly tolerated by severely wounded patients. Local anesthesia may be employed if adequate for the occasion. Intravenous anesthesia is chiefly used for short procedures or to supplement local anesthesia. It is usually preferable in chest wounds, but patients with abdominal wounds do not take it well. Pentothal has been quite satisfactory. The majority of our patients in the field are given open drop ether unless an expert anesthetist is available. This is suitable for all casualties except those who have chest wounds. Furthermore, it can be successfully given by comparatively inexperienced anesthetists.

Gas gangrene has been infrequent in the present war. Using the sulfa drugs and leaving the wound open at the time of the first dressing have been considered chiefly responsible for this decrease, though the fact that but little fighting has occurred in well-cultivated agricultural areas since our entry into the war undoubtedly has some bearing.

Early diagnosis is extremely important and is based on the following three early symptoms occurring twenty-four hours or more after injury: (1) watery, brown discharge, (2) brawny discoloration about the wound edges, and (3) typical "dead rat" or garlic-like odor that is always present.

A wound showing these three early symptoms must be immediately and widely opened without waiting for laboratory report. It must be radically débrided, freely sprinkled with sulfonamide powder, and left open. Antigas serum should also be used, the first dose three times the ordinary dose. The serum should be given every four to eight hours as indicated.

Burns

Burns have been one of the most serious types of wounds during the present war and are much more common than they were in the first World War. Under conditions of modern warfare, they comprise some 60 per cent of casualties.

The most important and immediately imperative treatment of burns is to allay pain and combat shock. Morphine and blood plasma are the prime factors in treatment. Local treatment may be applied simultaneously, or it may wait. Plasma has been almost a specific in these cases.

The amount of plasma to be given varies, of course, with the condition of shock, area of burn, etc. As with wounds, at least 500 cc. should be given to severely burned patients as soon as possible. The worst cases need more. Plasma must be given rapidly, 500 cc. in five minutes if possible, to the patient in a critical condition. It should not be allowed to flow drop by drop. Syringe injection may be used. A good practical rule for twenty-four-hour administration of plasma at hospital or in the field is that used by the Navy: (1) 10 per cent of body surface burned, 1,000 cc., 20 per cent of body surface burned, 2,000 cc., etc.; (2) always give in divided doses; (3) if hematocrit determination can be done, give 100 cc. of plasma for each point above 50 per cent cells.

Following plasma, normal saline solution with 5 to 10 per cent glucose or 1.8 per cent sodium lactate solution may be given intravenously if necessary for fluid intake but should not exceed the volume of plasma given in any one twenty-four-hour period except when there is severe hemoconcentration, with hematocrit about 70 per cent cells.

Because of the condition of the skin, edema, etc., it may be extremely difficult to find a vein for plasma injection. At Pearl Harbor, it was necessary to use veins anywhere on the body for this purpose. The femoral vein is nearly always available and can be easily reached by introducing the needle at right angles to the skin

otomy than to wait until the diagnosis is certain. A conscientious effort must be made to repair these wounds, for recovery often occurs in an apparently hopeless case.

Reports from the Pacific combat area describing serious damage done by tiny pieces of metal penetrating the abdomen have emphasized the necessity of careful study of every wound of the abdomen, no matter how insignificant it may seem.

The abdominal viscera should be thoroughly examined regardless of the location of the external wound. Resection should not be done unless the intestinal blood supply is inadequate. Eight to 10 Gm. of powdered sulfonamide should be scattered through the abdominal cavity and the wound closed without drainage. Drainage is rarely indicated and may do more harm than good.

Patients with perforation of the large gut do not do so well as those having perforations of the stomach and small gut because of complicating wound infection or fistula formation. It is probably better not to close the skin and subcutaneous tissues in these cases.

Extremities.—Wounds of the extremities constitute more than two-thirds of hospital admissions of war casualties.

The presence of metal fragments in the tissues is perhaps the most frequent surgical condition encountered. These fragments may number hundreds. Most of them give no trouble and should be left alone unless readily accessible, being removed only when they lie in joints or cause symptoms. It is sometimes necessary to remove them for psychologic reasons. Wounds of joints do not do so well as wounds of the soft tissues. With them, as little surgery as possible should be done. A sulfonamide suspension should be injected in the wound and a cast applied.

Secondary hemorrhage is a constant danger in battle casualties. Metal fragments which produce relatively small wounds may partially sever arteries and cause large pulsating hematomas with constant danger of massive hemorrhage. The only safe way of treating a pulsating hematoma is by ligation of the involved artery above and below the injury and by division of the vessel. The accompanying vein is also usually ligated. The collateral circulation is good, and complications do not occur following the double ligation. Attempt at arterial suture is not recommended. The sac is not excised but is scraped with gauze, washed clean, sprayed with sulfonamide powder, and then obliterated with a few interrupted sutures.

Fractures are usually compound. These are treated in the same manner as wounds of the soft tissues and the limb is put up in plaster if it is available, traction being incorporated if necessary.

The sulfanilamide-Orr-Trueta plaster cast treatment for extensive wounds of the extremities, with or without associated fracture, was used for all such wounds at Pearl Harbor, and the excellent results obtained there have been confirmed in other combat areas. Plaster immobilization of extremities after severe wounds, with or without fracture, very definitely relieves pain and promotes healing. With this treatment, patients can be transported long distances in comparative comfort, without change of dressings, while their wounds improve.

In applying this treatment, the wound is first treated as has been described. It is preferable for the layer of gauze dressing next to the surface of the wound to be treated with vaseline or some other lubricant. Then, if the blood supply of the limb is adequate, an accurately fitting plaster cast is applied, padding being placed only over bony prominences. No window is left over the wound because it promotes herniation of tissue. Skeletal traction may be incorporated if necessary. In the absence of complications, which are rare if the wound has been properly handled, the cast is preferably not removed for three weeks after application, even though a terrific odor develops. This frequently occurs with open wounds, but it is due to discharging wound secretion beneath the cast and is not a sign of serious infection.

Patients with infection whose wounds are dressed frequently, with consequent movement of the affected part, do not do so well as those whose soiled dressings are left in place in the plaster. Frequent treatments, while occasionally required, cause unnecessary discomfort to the patient and increase severity of the infection. Plaster cast with infrequent dressings gives better results than hot soaks or other forms of frequent local treatment.

The war has produced a considerable increase in fractures of the os calcis among naval personnel. Most of these casualties are now the result of the explosion of torpedoes or bombs below decks, which causes a sudden and forcible buckling upward of the ship's deck and is likely to injure a man who may be standing on the deck. These fractures are frequently bilateral, as the man's weight is usually rather evenly distributed on both feet at the time of impact. The os calcis of one foot, however, may be more comminuted or compressed than the other.

Amputation.—Patients may be received who have had a traumatic amputation or in whom the bone has been so severely damaged that immediate amputation is necessary. In selected

Council has re-emphasized the imperative need of plasma, followed by whole blood in the stage of anemia. The efficacy of sulfanilamide or sulfadiazine by mouth or intravenously has also been re-emphasized, together with adequate fluid intake to protect the kidneys.

A point specially emphasized is the critical judgment required regarding the administration of morphine in cases presenting symptoms of anoxia, particularly hot-fume lung injuries. Under these circumstances, it is considered that the dose of morphine should not exceed 1/4 grain.*

* The opinions or assertions contained in this article are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service at large.

U.S. STRETCHER BEARERS TOUGH, HEROIC, TENDER

NORTHERN TUNISIA (By Wireless).—I hope somebody in this war writes a book about the medics at the front. I don't mean the hospitals so much as the units that are actually attached to troops and work on the battlefields under fire.

They are a noble breed. They and the telephone linemen deserve more praise than I have words for. Their job is deadly, and it never ends. Just in one battalion several of the battlefield medics have been killed and a number decorated.

But noble as it is it seems to me, and to the doctors themselves, our battlefield medical system isn't all it should be. There aren't enough stretcher bearers in an emergency, and in a recent battle at which I was present some of our wounded lay out as long as twenty hours before being brought in.

The work of the medics comes in peaks. If they had enough stretcher bearers for all emergencies there would be thousands of men sitting around most of the time with nothing to do. Yet when an emergency does come and there are not enough it's an awful thing.

Wounded men had a rough time of it in this rocky, hilly country of northern Tunisia. It is hard enough to walk when you aren't carrying anything, but when two or four men are lugging 200 pounds on a stretcher it is almost impossible to keep on their feet. I have seen litter bearers struggling down a rocky hillside with their heavy burden when one of them would slip or stumble on a rock and fall down and the whole litter would go down, giving the wounded man a bad shaking up.

Litter bearers sometimes had to carry wounded men five miles or more over this rugged country. A bearer is just about done in by the time he does that, yet in battle he has to start right back again. And somehow, even though it gets to be just a miserably tough job, I've noticed that they manage to keep their sympathetic feeling for the wounded.

We've heard stories about the Germans shooting up ambulances and bombing hospitals and I personally know of instances where those stories are true. But there are also stories of just the opposite nature. Many of our officers tell me the Germans have fought a pretty clean war in Tunisia. They do have scores of crafty, brutal little tricks that we don't have, but as for their observance of the broader ethics of war, our side has no complaint.

One battalion surgeon told me of running his ambulance out onto a battlefield under heavy artillery fire, whereupon the Germans stopped shelling and stayed stopped while he evacuated the dead and wounded for eight hours.

I've heard other stories where our ambulances got past German machine-gun nests without knowing it until the Germans came out and stopped them and, seeing they had wounded, waved them on. And as far as our doctors know, the German doctors give our captured wounded good medical care—as we do theirs also, of course.

In the last war nerve cases were called "shell shock." In this war they're called "anxiety neurosis." About 50 per cent of our neurosis cases are recoverable, and even return to fighting units.

A large proportion of these cases are brought about by complete fatigue, by fighting day and night on end with little sleep and little to eat.

Surgeons sometimes spot neurosis cases that they suspect of being faked in order to get out of the front lines. Their system is to put these men on stretcher-bearer duty—a hard, thankless, dangerous task. If they are faking they get well quickly and ask to be returned to their regular outfits.

In the front lines you get so used to the constant boom of artillery that you stop jumping every time a big gun goes off. If you didn't you'd look like somebody with St. Vitus' Dance. However, there's another reaction—you get irritated. You get irritated in the same way you lose patience with a baby that cries all day or a dog that barks all night. The damn noise just never ends. There's hardly a second of the day when the guns aren't rolling or those ghostly shells rustling through the air.

Finally you get so bored with its consistency that you feel like jumping up in a huff and yelling: "Oh, for God's sake, stop it!"—*Ernie Pyle. Reprinted by courtesy of the New York World-Telegram, Copyright 1943.*

SOFTENED BY EXPERIENCE

The late Dr. James W. Leech did many tonsillectomies in his day. When he was somewhere around 50 years of age he had to have his own tonsils removed. While convalescing in the hospital he asked to have the head operating nurse sent to his room. He said to her, "Miss Potter, I wish hereafter to make a change in my operating technic."

"Yes, Dr. Leech."

"From now on when you set out my instruments please see that there is a large sterile handkerchief on the table, for when it comes over me how that poor patient's throat is going to feel in a few days I am going to burst into tears."—*Rhode Island M. J.*

1½ inches below the midpoint of Pouparts ligament and medial to the palpable pulsating femoral artery.

A point not generally appreciated is that, in emergency due to absence of available peripheral veins, intravenous medication of blood plasma or citrated whole blood can be administered through the corpus cavernosum of the penis. In occasional cases, this could easily be a lifesaving procedure. Slightly more pressure is needed than that required for ordinary intravenous infusions, but the rate of flow may be as rapid there as elsewhere. This method is not recommended for other solutions because of the risk of chronic cavernositis.

Human serum albumin may be used in emergency treatment of shock in place of plasma. Although the indications for its use are the same, it is not a substitute for plasma. While early administration will prevent the fall of blood pressure associated with decreased blood volume in shock, the value of serum albumin exists chiefly in certain military situations in which storage or transportation space is at a minimum. Its use in these situations should be mainly as an emergency measure. Since it is extremely hypertonic and draws upon tissue fluid to increase the blood volume, considerably greater clinical judgment is required for its use than for the use of plasma. The written precautions included in every package of serum albumin should be constantly borne in mind. Dehydrated patients must receive adequate fluids parenterally. Serum albumin is contraindicated in cardiac degeneration.

Local treatment of burns continues to be in a state of flux. Unfortunately, no standard local treatment can be recommended, and the individual physician must be guided by his own experience, judgment, or preference, and by the remedies available.

Burns have recently been successfully treated with double-strength normal saline solution locally or in a tub. Burned areas covered with heavy fuel oil may be cleaned by gently wiping them with absorbent cotton soaked in a purified mineral oil such as Nujol. This leaves a thin oily film which is more readily removed. Several detergents which are easily obtained commercially are also excellent for this purpose. These are Drene, Dreft, and Orvus. They are all used in 5 per cent solution and remove practically all oil.

The Subcommittee on Burns of the National Research Council has condemned the use of tannic acid in any form for the first aid treatment of burns and has discredited its use for the definitive treatment of third-degree burns because the eschar tends to lock in infections, to devitalize tissue, and to preclude the use of any other form of treatment. Serious toxic reactions, principally of the liver, have been reported where delayed or incomplete tanning permitted absorption of much tannic acid.

At Pearl Harbor, we used powdered sulfanilamide, 0.8 Gm. in 100 cc. of mineral oil on fresh burns, and powdered sulfanilamide or powdered sulfadiazine covered with compresses wet with normal saline or aqueous solution of azochloramid on infected burns, both with good results. After the raid of December 7, 1941, we used the sulfadiazine in triethanolamine spray on a few cases. Although this was satisfactory, we felt that the time and individual attention required preclude its use when any great number of severely burned patients are to be treated.

Recent reports from the Pacific combat areas state that burns were satisfactorily treated by applying dressings of fine mesh gauze impregnated with 6 per cent sulfanilamide in equal parts of cold cream and lanolin. Several layers of sterile gauze are applied over this, followed by cotton elastic compression bandages. Best results with infected burns were obtained from wet dressings of 2 per cent acetic acid.

Recently, the sodium salts of sulfathiazole and sulfadiazine have been successfully used by Fox and Tamarind in the secondary local treatment of extensive second- and third-degree burns, beginning about one week after injury. Fine mesh gauze impregnated with a 10 per cent suspension of sodium sulfathiazole in petrolatum is applied to burned surfaces and changed every two or three days as indicated. The granulating surfaces gradually presented a normal appearance and one patient was successfully skin grafted with paper-thin Theirsch grafts about six weeks after injury, indicating that the granulating surfaces were surgically clean.

The National Research Council, however, has now recommended against the local use of the sulfa drugs on burns, stating that they are of no value and appear to increase the rate of infection. They also state that aquaphor bases have been found to be not a desirable type of application.

Largely based on a study of the clinical material afforded by burned patients at the recent Cocoanut Grove fire in Boston, the National Research Council now recommends simple boric ointment or vaseline dressings with fine mesh sterile gauze and a smooth, even, compression bandage as local treatment for burns. Stockinette, or some form of elastic bandage, is more effective than a roller bandage. This should be covered with a thick layer of gauze, absorbent cotton, cotton waste, or cellulose. The

injunction to "stop worrying," which so often merely serves to send the patient out in a hectic search for a more understanding person. Unfortunately, the latter is apt to be a rapacious quack who, with the intonations of a prophet, gives the patient the consolation and sympathy that he so genuinely seeks and needs.

The treatment of all emotionally ill people is most efficacious in the setting of a warm and friendly relationship with another individual. All psychotherapy is, after a fashion, an interpersonal relationship.[1] The relationship may not be recognized by the patient or even by the therapist, but the extent and direction of this relationship determine the efficacy of treatment.

Any physician who has tried to treat emotionally ill people, however, will appreciate the fact that this task is an ambitious one and requires time and perseverance. Inevitably the patient directs the same kind of unreasonable attitudes toward the psychotherapist that he has displayed in all his previous relationships. The long period of conditioning that makes the individual's character structure a part of himself cannot be argued away by an appeal to reason. The patient is usually unaware of why he reacts the way he does, and he develops attitudes of hostility, disappointment, and rejection toward the physician in spite of his better judgment.

The relationship that the patient establishes with the physician is motivated by a deep desire to fulfill those biologic longings that are a heritage of every human being. Inevitably, however, the physician becomes the target of the patient's neurotic goals and compulsions. The patient may, for instance, submit himself, render himself defenseless, or become a martyr. He may struggle with a need to victimize himself so that he can criticize the physician. He may identify himself with the physician, or tear him down in fantasy, or verbally, or by actual aggressive acts. He may strive to cash in on submissiveness by toadying to the physician while at the same time he burns inwardly with indignation. He may be paralyzed in his relationship and take a thousand precautions before he expresses himself so as not to offend. He may compete with the physician or try to outshine him. He may strive to crush whatever atom of individuality he has left if he feels the physician will be good to him and protect him. He may resent intrusion into his private ambitions and fantasies and express disguised or open hostility. These and countless other attitudes will unfold themselves as the therapeutic process proceeds.

The attitudes are important clues to the general character organization, and when they are brought to the attention of the patient they permit him to understand his problems while actually re-experiencing them. This enables him to work through the dynamics of his reaction patterns in his relationship with the physician.[2] Under these circumstances, the various defense reactions and resistances which are directed against inner fears and strivings become apparent to the patient not as theories but as real experiences, and he is gradually enabled to gain insight into his unconscious motivations.

Unwholesome reactions are bound to occur from time to time, and unless they are analyzed they may interfere with treatment. One of these is a clinging, dependent attitude toward the physician, who is overvalued as the embodiment of all that is good and strong and noble in the universe. This sort of relationship is rooted in an intense feeling of helplessness, escape from which is sought by seeking protection in a deity or dictator, a shrine or cult, that can in some magical way lead the person into paths of health, glory, or accomplishment. The so-called "faith cure" is based upon a relationship of this nature. The ability of the person to build up the priest, shrine, physician, or charlatan to his magical expectations and to ally himself with the object of his creation restores his security and self-esteem.

The aim in treating the individual who operates on the basis of magical expectancy is to convince him that he has rights and abilities of his own, that he is capable of functioning without the aid or sanction of a stronger person. This is accomplished only against great resistance, for the patient acts as if he has an amputated self and needs to replace it by fastening himself parasitically to a more powerful host. He will offer great resistance to the suggestion that he enter more actively into the therapeutic relationship and try to do things for himself. This is because he has little confidence in his own actions or ideas. He will furthermore regard failure of the physician to live up to his expectations as evidence of ill-will toward himself, and he will be tempted to interrupt treatment and go out in quest of greater and more powerful gods. It takes much patience to kindle the spark of independency that remains into a flame that lights the way to freedom and self-assertiveness.

Another unfavorable form of relationship is that of fear of the physician as a potentially destructive or malevolent being who threatens to injure or to engulf the patient. The nucleus of this attitude is a hostile image of the parent that is later displaced on all authoritative individuals. The basic attitude of fear may be disguised by secondary defensive devices, such as aloofness and detachment toward the physician, or defiance, skepticism, and indifference. There is a great resistance to the revelation of

RECENT TRENDS IN PSYCHOTHERAPY*

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MENTAL health involves a harmonious interaction of intellect, of emotion and behavior, of conscious and unconscious motives, of environmental and personal standards, of internal drives and reality pressures. The person with integrated attitudes is capable of functioning smoothly in his contacts with the world. The emotionally unbalanced individual, on the other hand, is incapable of making adjustments essential to the gratification of his impulses and goals. He is driven by anxiety to compromise his fundamental needs in favor of neurotic defense mechanisms that serve a vicarious safety function.

The seeds of mental health develop in the soil of the mother-child relationship during the first years of life. There is a biologic reason for this. The human infant is the most helpless of all creatures and is dependent upon his mother for every kind of service. How well his pleasure strivings are gratified, how secure he feels in his relationship with his parent will determine his later attitudes toward himself, toward the world, and toward other individuals. If the mother is a loving, bountiful mother, the child's relationships with others will in all probability be based upon love and expectancy. If the mother is a rejecting mother or an excessively disciplinary mother, there more likely will develop attitudes of disappointment and fear.

Genetic and constitutional elements undoubtedly enter into the molding of a child's personality. Any observer of infants knows that there are differences among children, particularly in the gradation of emotional endowment. We may expect, therefore, that different children will react with varying intensities to parental deprivation and frustration. This does not alter the fundamental rule that all children will show catastrophic reactions to a withholding of maternal love.

The core of a person's attitudes toward the world is built from his experiences with the world. When these experiences prove to him that the world is a menacing place in which to live, defensive reactions are elaborated to preserve the integrity of the self against danger. These reaction tendencies are imbedded in the character structure which regulates relations with the world and with other individuals.

While many character traits protect the person against real or fancied dangers, they often disable him in his adjustment to life. For instance, when parents are domineering, hostile, or excessively disciplinary the child may acquire an inordinate suspicion of other persons, a fear that he is unloved and that he cannot depend upon anyone except himself. He may strive to protect and isolate himself from danger by an entrenched attitude toward life whereby he detaches himself from other persons, becomes aloof, obstinate, and suspicious. At the same time he may strive to make himself secure by a compulsive drive for power, prestige, or possessions. These drives have a passionate quality, for they serve as reactions against helplessness and loss of self-esteem. Yet they often bring the person into conflict with others and frustrate the gratification of his instincts and cravings.

When the character structure becomes incapable of adjusting the individual to his inner strivings and to environmental demands, the ego retreats to a secondary line of defense in neurotic behavior and symptom formation. It is important to remember, however, that associated with every neurosis is a defective character structure which eventually victimizes the person and puts him at the mercy of compulsive drives. This concept is important in therapy, for unless subversive character traits are undermined, neurotic symptoms will either resist treatment or will vanish temporarily only to return later in a slightly disguised form.

Injured tissues possess within their substance a spontaneous urge to mend themselves. In emotional illness, too, the individual has a biologic striving to heal his damaged relationships with his fellow creatures. Every physician is acquainted with the psychoneurotic who drifts from doctor to doctor, from clinic to clinic in never-ending trek, ceaselessly seeking solace for his fancied ailments. What the patient seems to want is a magic pill that can miraculously dissolve his woes, but deeply, perhaps unconsciously, there is a frenzied attempt to find a human being who is kindly and understanding and with whom he can establish a congenial relationship. At the root of his desire to use people as outlets for his compulsive neurotic drives, to cling to them or to dominate them, is a healthy tendril of wanting companionship and love. Cognizance of this may make the practitioner less impatient with the histrionics of the neurotic and less likely to dismiss him with the

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* This is the first of three papers on psychotherapy by Dr. Wolberg. The other two will appear in later issues.—*Editor*

patient is the extent to which he is able to reorient himself in his relationships to people, evidenced by his acceptance of the physician as a human being, neither as a demigod nor as a demon. Because of a diseased character structure, the attitudes of the neurotic and psychotic toward others are disturbed and any relationship that he is able to establish is an unstable one threatened constantly by neurotic needs and compulsive drives. It is a prolonged process that breaks the vicious chain of magical expectancy, frustration, and fear of injury which tincture the attitudes of the emotionally ill person.

Interpretation by the physician of the defense reactions and resistances and of the progress of the relationship is of vital importance to the achievement of insight. A kindly and tolerant attitude toward the patient is indispensable, and the physician must be aware of his own personal conflicts in order not to be threatened by the expressed hostility of the patient and in order to avoid using the patient as an object for his own interpersonal problems. It is essential also to evade the god-like mantle of omnipotence that the compulsively dependent patient strives to throw over the doctor's shoulders in his quest for a faith cure.

The goal of interpersonal therapy is a rehabilitation of the individual as a functioning unit in society and the development of attitudes related to the world, to himself, and to other individuals capable of satisfying rather than hampering his fundamental needs.

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SIX RULES FOR HEALTH PROTECTION OF WORKERS

In a May Day statement, New York City Health Commissioner Ernest L. Stebbins laid down six minimum essentials for protecting the health of the young workers now entering employment. These new workers include those 16 and 17 years old who are leaving school for full-time employment and those from 14 years up who are taking part-time jobs outside of school hours.

"Good health care for the unprecedented numbers of teen-age youngsters who are now taking jobs," said Commissioner Stebbins, "is a matter of urgent concern for parents and the whole community. The following six points should be borne in mind:

"First is the need for *proper and sufficient food.* Too much stress cannot be placed upon the importance of choosing the right kind of meals for the working adolescent. He needs three substantial meals a day which supply an adequate amount of all the food elements required to keep the body in good condition.

"Second, *adequate sleep* is most necessary. Left to his own device the teen-age boy or girl who finds that he has money in his pocket is prone to develop the habit of prolonged night entertainment, which will deprive him of adequate rest and will undermine his health. The test of adequate sleep is whether the youngster awakes well rested in the morning.

"Third is *recreation appropriate to the young person's needs.* This is especially important for boys and girls who are making a sudden transition from school life with its varied activities to a confining eight-hour day in industry.

"Fourth is the need for *periodic dental and medical examination.* Tuberculosis is a serious health problem for adolescents. Often children have the infection in an inactive form and an additional strain during the teen years causes the infection to flare into active disease. Pre-employment examinations are not sufficient. There is need for periodic medical and dental follow-up.

"Fifth is *avoidance of overfatigue and following the rules of safety.* Strict limitation of hours of work in accordance with the New York State laws is most important. It is equally essential that the job selected should be suitable to the individual youth. Rest periods, if only of five or ten minutes during the day, add to the young worker's efficiency.

"Sixth, and above all, every youngster should be given the opportunity to lead as *normal a family life* as possible."

Commissioner Stebbins explained that "the Health Department working papers clinics, which give physical check-ups to children and young people wishing to secure employment, examined in 1942 a total of 109,957 children and young people, as against only 45,339 in 1940. The number is increasing, and during the first three months of 1943 a total of 32,420 minors under 18 were examined by the Department's working papers clinics. Young persons now entering employment are under great strain, particularly those who carry a combination load of both school duties and work. Many of them are expected to handle jobs previously performed by older workers, and their health must be carefully watched."

The health of the adolescent youth is of such vital importance to the country that President Roosevelt stressed this in his Child Health Day proclamation, and urged "special measures in behalf of those boys and girls of high school age who are combining school with part-time jobs, working during vacation, or entering full-time employment, in order that their safety, health, and normal growth may be fully assured."

inner fantasies and hopes, for to reveal them is to put oneself at the mercy of another dangerous person. The goal in life is to maintain one's integrity and intactness by warding off impacts from the outer world and by maintaining a chasm between oneself and others. Treatment in this type of patient proceeds only when he realizes that the physician does not desire to punish him for his inner strivings and demands but is benevolently neutral toward them. The relationship will remain shaky for a variable period of time. The patient will retreat whenever he feels that his attachment is getting too close. A "testing period" precedes his final acceptance of the physician as one who bears only good will toward him. During this period he will be torn between his desire to establish a gratifying relationship and an overpowering fear of injury. The outward manifestations of this struggle may be hostility to the physician. Children with behavior problems, for example, may attempt to provoke the therapist and to incite him into acts of aggression to prove to themselves that all human beings are alike and are not to be trusted. This "testing period" will be especially prolonged in the psychotic, and it may be many months before the patient accepts the physician as a friend.

Free communication is always essential between the physician and patient. If the latter is a child, the physician must use the language of the child. This language is play. Much that the child cannot or will not verbalize he will express in play activities. Indeed in recent years the orientation in child therapy has been around the use of play technics and materials.[3]

In the case of the psychotic it is essential for the physician to understand the symbolic language that the patient utilizes in his regression to primitive phases of his development. Much as the dream language has a function, so the language of the psychotic, albeit bizarre and seemingly incomprehensible, has a rich and vital meaning that must be understood before a treatment situation can be established. Pioneer work in this field is being carried on at the Menninger Psychiatric Hospital and at Chestnut Lodge in Baltimore, where psychotic individuals who have regressed far into a world of their own are brought back to reality by rehabilitating interpersonal relationships.[4]

Whether or not complete insight is essential for cure is difficult to say. This will depend upon our definition of insight. If by insight we mean the recovery of infantile memories, particularly traumatic sexual experiences, relating them to the existing symptoms, we may fail to attain this sort of insight even when considerable change for the better has occurred in the patient. Conversely, infantile memories may be recovered without apparent influence on the character structure. If by insight, however, we mean a changed attitude toward life, a realization that the world is neither menacing nor hostile and that people are not necessarily the purveyors of pain and destruction, then insight is an ingredient essential to personality change. This form of insight develops slowly and is often unexpressed.

The attainment of insight reflects itself in a changed attitude toward people wherein the patient feels neither threatened nor challenged to excel, wherein his expectations are neither so high that he is inevitably frustrated nor so low that he fails to permit himself to express his needs and strivings, wherein he is not excessively dependent on others nor compulsively determined to play the lone wolf, wherein his self-esteem is not forever in jeopardy, swelling and ebbing with the opinion of others, wherein he can express his instinctive longings without fear of condemnation and feel justifiably hostile without fear of injury.

The interpersonal approach to psychotherapy concerns itself primarily with character structure and only secondarily with symptoms, for the symptom picture itself is an outgrowth of a failing character function.[5] It matters little, consequently, whether we are confronted with a behavior problem in a child, a psychosomatic syndrome, a psychoneurosis, or a psychosis. In each our aim is the winning of the patient over to the realization that not all human beings are dangerous, or contemptuous, or frustrating. He must learn that he can be accepted for what he is rather than for what he does, that feelings of hostility need not result in counterhostility, that he has the right to be self-assertive and free, that he need not force himself to be "good" in order to be loved or execute rituals of conformity or obeisance toward all authoritative individuals.

Around the relationship with the physician are rebuilt attitudes shorn of neurotic fears and expectancies. Once this is achieved, compulsive drives and neurotic symptoms no longer have purpose or protective function, for they are at best incomplete substitutive gratifications and involve much compensatory suffering.

Summary

In recent years great emphasis has been laid on the psychotherapeutic potentialities of the relationship that develops between physician and patient. The psychoanalytic school was first to investigate this relationship by dissecting the transference of the analysand to the analyst. It has become increasingly apparent that what actually determines improvement or cure in the

symptomatic relief, the so-called immunity, resulting from specific therapy.

Patients sensitive to ragweed pollen show not only wide quantitative variations in the degree of sensitiveness but also important qualitative differences which must be understood to secure the best results.

In specific therapy one is seeking satisfactory clinical results without disagreeable local or dangerous systemic reactions. In some cases good results are secured with a maximum dosage of 100 protein nitrogen units or less, while in other cases 100 to 200 times this dose is needed. In general, the use of skin tests with serial dilutions of, say, 10, 100, and 1,000 units per cc. will indicate the highly, the moderately, and the less sensitive groups, and so the dangers of a general reaction in the early stages of treatment may be avoided by using such dosages. These I have outlined in Cecil's *Textbook of Medicine*.

In the later stages of treatment, general reactions seem to be due to the lack of development of a protective antibody. This occurs chiefly in those patients who are sensitive to one of the several proteins in ragweed pollen which we call "Fraction 2." Although it is a poor stimulant of the protective mechanism, it is a good reactor. In clinical practice, dangerous reactions after pollen therapy are avoided by keeping patients under observation for at least twenty to thirty minutes after an injection. If symptoms of a general reaction start, epinephrine, 1:1,000 in doses of 0.5 to 0.7 cc., is given, and the tourniquet should be promptly used.

We believe that the perennial treatment of pollen-sensitive patients—that is, monthly injections of the maximum dose—is advantageous to many, but not to all patients. All extracts of inhalant allergens, such as danders, dusts, and the like, are used when indicated in the same general and empirical way as the pollen extracts, and perennial treatment is particularly indicated on account of the continual exposure to contacts.

Symptomatic Treatment.—Very little can be done with drugs to allay the symptoms of hay fever. Sometimes atropine sulfate in doses of $^1/_{200}$ to $^1/_{500}$ grains may lessen the discharge. A spray of 0.5–1 per cent cocaine will give temporary relief but is too dangerous to prescribe. Ephedrine, $^3/_8$ grain, taken by mouth may help to reduce the edema. In sprays of 1 per cent it gives temporary relief but should be used sparingly and for a short time only, as it often produces a vasomotor rhinitis if used over a long period. In general, local nasal treatments such as carbolic acid, cauterizing agents, and packs are to be avoided, for they increase tissue irritability and reactivity and never give more than temporary relief.

Hyperplastic Rhinitis.—With this condition we must also consider sinusitis and polyposis, for they are frequently associated. Irreversible tissue changes have taken place. Many of these cases are associated with vasomotor reactions to air-borne excitants. In fact, they seem to follow longstanding vasomotor allergies and perhaps may be caused by them. From studies of these cases with Dr. Grove, our present inclination is to consider them as a special sensitization reaction to bacterial invasion, which is the primary cause but is aided and abetted by the existing vasomotor change.

Clinically speaking, infection dominates the picture ultimately. I give this brief outline of our concept of the pathogenesis because it aids in the appreciation of therapeutic procedures. These measures are: management of contributing factors; specific vaccine therapy; operative intervention; symptomatic drug therapy.

There is as yet no satisfactory evidence that vitamin deficiencies or endocrine dyscrasias either cause or predispose to the condition except in so far as general good health tends to discourage any infective process.

Whenever vasomotor allergies coexist, they must be treated as already outlined by avoidance of the cause or by specific injection, and this may be sufficient to give symptomatic relief and permit the infective process to become latent.

By way of illustration, I might cite the case of a physician with a longstanding history of frequent nasal operations, polypectomies, septal, and turbinal resections, without relief. He was found to be sensitive to casein. Symptoms promptly disappeared when he avoided milk and cheese, which he had taken freely, and no further operations have been needed for the past six years, although he still has the objective nasal and sinus tissue changes.

Foods, however, contrary to the belief of many, rarely cause trouble. Air-borne factors are common. In patients subject to frequent exacerbations of infection or in whom infection is the sole cause, one seeks for primary foci such as infected adenoids, tonsils, or teeth. If present they should receive prompt surgical attention.

The next step is to determine the type of infection. This is easier said than done, for cultural studies have shown that organisms deep in the tissues are, in at least 50 per cent of the cases, not identical with those obtained from the surface by nasal swabs or antral irrigations. Without operation, however, such surface cultures are the best available for vaccines, and from clinical observation I believe that such

Therapeutics

CONFERENCES ON THERAPY

THESE are stenographic reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments and institutions. The questions and discussions involve participation by members of the staff of the college and hospital, students, and visitors. The next report will appear in the August 1 issue and will concern "The Doctor's Bag."

Treatment of Asthma and Hay Fever

DR. HARRY GOLD: The treatment of asthma and hay fever is the subject of the conference this morning. There have been many interesting developments, as you probably know, in the field of allergy, asthma, and hay fever. The subject of allergy has to be dealt with in connection with disorders of every system of the body in relation to problems of diagnosis as well as treatment. One of the major contributors to this field is the person who is going to open the discussion this morning, Dr. Robert A. Cooke, of the Roosevelt Hospital.

DR. ROBERT A. COOKE: I have somewhat the feeling of paying a visit home when I come here to talk with you today because, as at least some of you know, I was connected with this institution for many years—going back to perhaps 1915 or 1916. There is one difference, and that has been caused by the very sudden passing of my friend, Walter Niles. His death has made, and will continue to make, a great deal of difference to this institution, to which he gave so much in the way of effort and intelligent direction.

Now, as to our conference this morning, Dr. Wheeler has given me thirty minutes in which to open this discussion on the treatment of respiratory allergies, and in order to cover the subject-matter in its most important phases in the allotted time I shall take the liberty of reading these opening remarks.

As I have outlined my talk in my own mind, it will be better to consider the treatment of hay fever first, as a natural approach to the later discussion of asthma, but it should be emphasized here that these two allergies involving the respiratory tract coexist more frequently than not, and that much of what is said about one is applicable to the other.

I have assumed that the title "hay fever" is used in a general way to include all types of nasal allergy. It simplifies matters considerably if we consider them on the basis of the pathology involved, as (1) vasomotor (an acute and completely reversible reaction), and (2) hyperplastic (a chronic and irreversible tissue change), though it must be appreciated that a vasomotor reaction also occurs in hyperplastic membranes.

Vasomotor rhinitis, or allergic coryza, is seasonal or perennial, depending on the cause. The seasonal pollen hay fever is a simple vasomotor reaction like the perennial inhalant allergies, the rare food allergies, and certain infections. In a general way we may sum up the treatment, or rather the management, of these cases under three heads: (1) avoidance of cause; (2) immunization; and (3) symptomatic medication.

Avoidance of Cause.—This, of course, presupposes accurate determination of the cause by appropriate tests. In the case of pollen, it may be avoided by moving to pollen-free areas. However, this is not always feasible on account of loss of time and the expense involved. Air filtration and conditioning of a room, the home, or the office lessen exposure and are real helps. In the case of other inhalants encountered at home, much can be accomplished by careful cleaning and renovating and the elimination of certain household articles—a pillow, a mattress, or chair, or perhaps of the family pet or the type of insecticide used. If the allergen is encountered at work, as in the case of furriers, bakers, or hostlers, a change of occupation may be required, and if in foods—which in my experience is unusual—they should be omitted from the diet. Nasal infection causing vasomotor rhinitis is, eventually, at least, associated with hyperplastic sinusitis and will be considered later.

Immunization.—This is the accepted therapy for pollen and certain inhalant allergies, and, in a way, has become standardized, as witnessed by the fact that many sufferers get relief by injections of specified graduated doses of commercial preparations, but exceptional and difficult cases are so frequent and results so uncertain that much time and labor are being spent for a better understanding of the immunologic factors involved in the reaction itself and in the

fection, and existing areas or foci of infection in the respiratory tract. The first of these has been discussed. Nutritional or other diseases must receive appropriate treatment. The question of contacts is important. Persons with chronic sinus infection should not be employed as nurses. Infected members of the family unfortunately cannot be dealt with save by advice.

But something can and should be done about areas of focal infection in these patients. Children up to 18 years of age need little attention to the sinuses if recurring infections can be controlled, and the early removal of infected tonsils and adenoids is one of the best methods of control. In those patients with lymphoid hyperplasia of the pharynx not susceptible to surgical removal we secure beneficial results by the use of x-ray therapy as originally outlined by Remer. Vaccine therapy is useful in these cases, combined, when indicated, with dust, dander, or pollen injections.

Particularly important are the infective asthmas of the older age group, those over 30 or 40 years of age. This bacterial asthma occurs not infrequently in those with atopic allergies of early life, as well as in the large and important group who have had no history of allergy before the onset of the asthma. About 15 per cent of these cases are due to primary bronchial infection. The balance have upper respiratory foci which I believe, from my observation, long antedated the onset of asthma and may therefore be considered primary.

Generally speaking, these cases, at first periodic, when left to run their natural course become chronically and persistently asthmatic, usually with exacerbations, and the patients tend over the years to grow steadily more and more incapacitated. To severe chronic asthma the term "status asthmaticus" is applied.

Let us assume that these cases have been thoroughly studied from the general medical aspects; that the patients have asthma with perhaps certain of its direct sequelae, such as emphysema, cor pulmonale, and pulmonary fibrosis; and that their atopic allergies have been, or are being, adequately handled.

Let us first consider specific treatment directed against the cause. Specific therapy is as follows: (1) removal of primary foci, (2) immunization by vaccine therapy, and (3) specific drug therapy with sulfonamide compounds.

Primary foci are found in 85 per cent of our infective asthma cases. The teeth are important in so far as they may be the origin of sinus (antrum) infection—although rarely of and by themselves—and should receive first attention. Tonsils, when infected, and, rarely, adenoids in adults, require enucleation. Sinuses, and particularly antra, are the most frequent foci in our series.

The usual pathologic change in the sinuses is hyperplastic; hence a purulent discharge is not present except in acute exacerbations and is not the criterion for operation. Though sinus disease should be diagnosed at once, we usually prefer a conservative course of vaccine therapy first. It is not often successful, but it gives opportunity to size up the patient, to build up reserve, to prove perhaps to the patient that climate, even that of Arizona, will not effect a cure, and finally to choose a more propitious time of year, late spring through early fall, for the operation.

When this treatment has been carried out in accordance with the suggestion that I made earlier, the results have been satisfactory and worth while in 80 per cent of about 300 patients whom Dr. Grove has operated on. The aftercare is important, and requires rest during the six weeks of healing after antral surgery and, when possible, for several months thereafter. There should be a convalescent home for postoperative clinic patients just as there is for tuberculosis patients.

Vaccine Therapy.—Our preference is for autogenous vaccines prepared from tissue cultures and from sputum. Prepared in a stock 1-per-cent-by-volume suspension, we begin dosage with 1:1,000 dilutions of this and increase very slowly up to and through the 0.1 per cent suspension if possible. The danger, as I see it, comes from too large dosage, which frequently induces a symptomatic asthma. I have many times seen patients in severe status asthmaticus caused by vaccine therapy.

Drug therapy with sulfonamide compounds may work well with those whose infection is caused by the pneumococcus, the hemolytic streptococcus, and the staphylococcus. Good results may be obtained with such moderate amounts as 1 or 2 Gm. a day for two or three weeks, but the results are likely to be temporary. One must watch for sensitization to the drug, which sometimes occurs in these patients. Dr. Wheeler and I were just talking about this and agree that one should not use these drugs indiscriminately because the development of a sensitization will prevent the use of them later if occasion arises—for instance, in lobar pneumonia.

Symptomatic Treatment of Asthma.—This discussion considers all cases, mild or severe, of whatever cause, atopic or infective. In acute asthma, particularly the atopic type, the bronchial obstruction seems to be due to congestion and edema of the mucous membrane similar to those seen in vasomotor rhinitis. Judging from autopsy studies of the fatal cases in chronic

autogenous vaccines are superior to stock preparations, but tissue culture vaccines are superior to surface cultures. It is unfortunate that there is no simple test to determine sensitivity in these cases of bacterial allergy. Certain it is that the usual vaccine skin test is useless. Vaccines do at times give satisfactory results in these cases. Their use and dosage will be further considered under "Asthma."

When results are not obtained by the measures just outlined, recourse must be had to sinus surgery, and I wish to make a few general comments on sinus surgery because they will be applicable in our consideration of infective asthma, and because of a general disrepute into which sinus surgery has fallen because of unsatisfactory results. But, frankly, I believe in sinus surgery because I have seen its benefits in many persistent and otherwise intractable cases.

My comments may be summarized as follows:

1. Rarely is surgery indicated in a patient under 25 years of age.

2. In patients allergic to inhalant and food substances, avoidance of or treatment with the allergen should always be practiced before and after surgical procedure.

3. The operation must be superlatively well done by one trained in surgical technic and with a thorough knowledge of the anatomy of the sinuses.

4. The object of sinus surgery is to remove infected tissue, leave the sinuses well open for drainage, and conserve as much turbinal tissue as possible. Resection of the septum is indicated only when there is interference with the approach to the ethmoid and sphenoid cells or a complete blocking of a nasal cavity.

5. The trouble with sinus surgery is that it is done in piecemeal and incomplete fashion or it is done too late.

6. The cases must be carefully selected on the basis of their physical condition. One should not expect satisfactory results in old, long-standing cases with extensive pulmonary fibrosis.

As for symptomatic treatment, there is nothing to add to that already given under vasomotor rhinitis, except that it is particularly ineffectual.

Asthma.—In considering therapy in asthma, I am referring to true asthma, not cardiac, renal, or other forms of dyspnea. I shall divide the subject into, first, atopic asthma, the type in which the cause is determinable by skin test and which, roughly speaking, includes the cases caused by air-borne substances, foods, and drugs. The second type is infective asthma. This differentiation will facilitate my discussion, but it must be understood that both types are not infrequently seen in the same person, just as vasomotor and hyperplastic rhinitis occur together. Atopic asthma corresponds both immunologically and pathologically to vasomotor rhinitis, and infective asthma is the counterpart of hyperplastic rhinitis.

Atopic Asthma.—The attack may be paroxysmal or continuous, depending entirely upon contact with the exciting agent. This is the type of asthma frequently seen in infants and usually in children and young adults, and it may continue through life, but it rarely begins after 40 years of age.

Here we will consider treatment as directed against the cause—that is, prevention of attacks by avoidance of the cause of immunization. The symptomatic treatment of asthma, both atopic and infective, will be discussed together.

The prevention of attacks by avoidance or immunization presupposes the accurate determination of all causes. Among the more difficult cases are those of children who are continuously asthmatic but not completely disabled, whose asthma is due to some allergen in the home. What was previously said concerning vasomotor rhinitis is applicable here. When contact with the allergen is unavoidable, then recourse must be had to immunization. The important point to remember is that therapy must be carried on for years, not merely weeks or months, and care must be taken against intercurrent respiratory infections, which are the forerunner of a later sinusitis and asthma.

Infective Asthma.—Infection is a cause of asthma from infancy to old age. An acute infective asthma is seen particularly in infants, children, and young adults, when it is strictly periodic. It occurs in older adults, but here it is usually the cause of an acute exacerbation in a chronic asthma. In these patients there is active upper or lower respiratory disease, or both, which, were it not for associated dyspnea, would be a rhinitis, tracheitis, or bronchitis, or a patchy or lobar pneumonia. In these patients there may be fever of greater or less degree in the early stages, which may have subsided when the asthmatic paroxysm sets in, often several days after the onset of illness. Infection may be the sole cause of asthma in the earlier age group, but more frequently it occurs in those who have asthma of atopic origin. In such instances all of the factors causing asthma, both atopic and infective, must be controlled when they are concomitantly active in any one patient.

All patients who have had asthma from infection are peculiarly susceptible to recurring infections; hence we must deal with such predisposing factors as associated atopic rhinitis and asthma, malnutrition or associated disease, contact with those who have respiratory in-

of orange peel, can be recommended, but it is disagreeable. For adults, codeine, 1/2 to 1 grain, or pantopon, 1/6 to 1/3 grain, repeated three or four times a day is of greatest use. Dosages for children are proportionately reduced. If these drugs produce vomiting at first, so much the better, for it is more effective than coughing in dislodging mucus plugs. I have myself never seen serious results from the judicious use of these drugs, or even morphine. Certainly the control of the cough is necessary. I sometimes use chloral, 15 to 30 grains. Avertin, about 70 mg. per kilogram, or ether, 4 ounces in 3 ounces of oil, by rectum, have been recommended by some, but I find little use for them in my service.

There are still other procedures. Digitalis is necessary when there are signs of heart failure, best indicated by delayed circulation time or by increased venous pressure. One should always be on the lookout for this, especially in the elderly patients, and in patients with cor pulmonale. Strophanthin, 1/100 grain intravenously, may be indicated if failure is acute.

Irrigation of an antrum and the removal of accumulations of pus from the nose by suction or irrigation help if there is a purulent infection of the upper respiratory tract. Mustard paste broadly applied to the front and back of the chest at intervals is very comforting to many patients, as well as steam inhalations, especially in those with acute respiratory infection.

Artificial fever therapy is useful in prolonged status asthmaticus. I prefer to use the standard triple typhoid vaccine intravenously, at first 0.5 cc. of a 1:100 dilution and increasing daily, perhaps to as high as 1 or 2 cc. of a 1:10 dilution —enough at least to give a temperature of 102 or 103 F. Two or three such febrile shock doses often bring welcome, though temporary, relief.

Histamine, histaminase, calcium, and potassium salts, highly regarded in some quarters, have not yielded worth-while results in our clinic. Atropine and belladonna are contraindicated drugs. Intrabronchial use of iodized oil is mentioned only to be condemned as a dangerous therapeutic agent, though useful for diagnostic purposes in selected cases.

Time does not permit discussion of several other aspects, such as prophylactic therapy, the management of psychic factors, nutrition, and climate, all of which are of importance in certain cases and are included in the efficient management of the asthmatic.

DR. GOLD: Are there any questions?

DR. C. H. WHEELER: Dr. Cooke, I am not quite clear on your notion of the role of infection in the so-called infectious asthmatics. Do you believe that the presence of infection makes individuals sensitive to extraneous allergens, or is the individual sensitive to the products of the metabolism of the bacteria he carries?

DR. COOKE: The absolute proof of the existence of an allergy to bacteria is lacking, but just as we speak in general terms of drug sensitizations today, so also do we speak of a bacterial sensitization. What is called allergy to bacterial substance is evidenced by the fact that we can induce asthmatic manifestations by the injections of minimal doses of vaccine in certain persons with infective asthma. That is particularly true when vaccines made from autogenous cultures are used, and I might add that it is the reason for the care in the use of vaccines therapeutically.

To sum up then, I believe that in these infective asthmas we are dealing with a sensitization to either the bacteria or their products.

DR. WHEELER: And so, in such individuals little or nothing is to be hoped for by attempting to remove things from their environment, such as animals or feather pillows?

DR. COOKE: That is true, unless they are shown by skin tests to be atopic persons and also sensitive to environmental factors. The two, as I said, frequently coexist.

DR. JANET TRAVELL: In connection with the treatment of hay fever, I wonder whether Dr. Cooke would tell us the distinctions between the terms "desensitization" and "immunization."

DR. COOKE: Well, when we speak of desensitization what we really mean is that we are whittling away and destroying, or removing, the reacting antibody. That, I think, would be the natural concept of the term "desensitization."

However, in the immunologic study of these cases we find that when we begin to treat hay fever patients with injections of specific antigen, a pollen extract, at least during the first three or four months the circulating sensitizing antibody is increased in the blood and not diminished, although the patient may be clinically free at the same time. There is evidently an increase of the skin-sensitizing antibody, and since that is so, it does seem to me that the term "desensitization" is an inappropriate one. We believe, although we have not been able to prove it, that through injections of allergens we are creating a kind of actual immunity which coexists with the sensitization.

DR. GOLD: Dr. Cooke, what is the basic difference between atopic and infectious allergy?

DR. COOKE: When the term "atopy" was originally coined it was meant to designate the so-called hereditary group, but it has come to be

asthma, the chief obstruction is due to blockage of the bronchi with inspissated plugs of mucus. What we are attempting to accomplish by therapy in asthma is, first, the relief of bronchial obstruction; second, the relief of oxygen deficiency; and third, the rest and comfort of the patient by all other measures available. Let us consider them in this order.

The measures to relieve bronchial obstruction are:

(*a*) Drugs. In the milder cases, those with asthma after exertion or exposure to cold, symptomatic treatment is relatively simple, and relief may be obtained by drugs alone, such as ephedrine 3/8 grain combined with amytal 3/4 grain, or phenobarbital 1/2 grain, or epinephrine 1:100 in the special vaporizer for inhalation, which is helpful if used correctly and not too often. When combined with 10 to 20 per cent glycerin, a better mist is formed, which is an advantage. If the asthma is more acute, epinephrine 1:1,000 0.3 to 0.7 cc., by injection, is effective; or epinephrine, 2 mg. in 1 cc. of peanut oil or gelatin, may be used for less pronounced but longer effect. Aminophylline, 1 1/2 to 3 grains, combined with 1/4 grain phenobarbital, is also helpful.

Recently Harkavy and his associates have recommended nicotinic acid, 50 to 100 mg. three or four times daily. I have not had extensive experience with it but have seen no striking effects except that patients get a flush like that produced by intravenous aminophylline. In occasional cases acetyl salicylic acid, 5 to 10 grains, does remarkably well, but this drug should be prescribed with caution as asthmatic sensitization to it is not infrequent and death has been caused by its use. Potassium iodide, 5 to 10 grains, three times a day, should always be tried, of course, except in those who are sensitive to iodine. Occasionally it works marvels. I have seen no great virtue in the intravenous use of sodium iodide. Antipyrine is another drug to remember, as it gives relief when administered in doses of 5 to 10 grains.

In the asthmatic paroxysm of children, syrup of ipecac, 1/2 to 1 teaspoonful, is given to produce emesis. The act of vomiting is often more helpful than coughing in removing mucus from the bronchi. Stramonium smoke by inhalation, used as a powder or cigarette, is also helpful for the milder cases.

In the severe paroxysms and in cases of status asthmaticus, in addition to epinephrine in its various forms, aminophylline, 7 1/2 grains intravenously once a day or even more frequently, is useful. It is a great help when patients in severe paroxysm can be hospitalized, for, particularly in the younger group, an environmental factor such as dust may be important and is thus avoided. In this case the paroxysm automatically subsides in about forty-eight hours. During the pollen season air filters or conditioners are also available in most hospitals.

(*b*) Dehydration. Another procedure to relieve bronchial obstruction is dehydration. In recent years attention has been directed toward the relation between electrolyte balance and asthma. In practice, the measures employed are a low salt diet or a low sodium acid-ash diet, often in combination with a potassium salt of iodine or chlorine. Actually, these are measures for tissue dehydration, and perhaps in this way they open the bronchial lumen by causing a shrinking of the bronchial wall.

My own practice for years has been to place severe cases on fluids, weak tea, fruit or vegetable juices without salt; to give vigorous catharsis, using compound cathartic pills, 2 at night; magnesium sulfate, 1/2 ounce in the morning, followed three or four hours later by an enema or preferably a colonic irrigation. With enough sugar and sedation, this type of fluid intake can be maintained for three or four days. It has the additional advantage of lessening abdominal pressure on the diaphragm, which is important. Water may be freely given. This simple procedure I find very useful. It may be followed by small, frequent salt-poor feedings. Foods that may be a cause of asthma are excluded. Keeney has suggested tissue dehydration by the use of 50 per cent sucrose, 50 to 100 cc. intravenously, and it succeeds temporarily in some cases, especially when 0.2 to 0.4 cc. of epinephrine is added to the sucrose.

(*c*) A third method used with success in some cases aims to remove the mucus plugs by suction through a bronchoscope. Such a procedure should be accompanied by the simultaneous use of epinephrine 1:1,000 subcutaneously. Of course, this is not practical for frequent use.

Relief of Oxygen Deficiency.—Oxygen is of great help even when cyanosis is not marked. Asthmatic patients dislike tents and masks, as a rule. I prefer to use nasal catheters and have found them most practical. Whether to use oxygen alone or with helium is a moot question. The expense of helium is prohibitive when the open method is used and many of my patients in status asthmaticus do not tolerate the B.L.B. mask or tent. Actually, the oxygen alone by nasal catheter seems to be entirely satisfactory.

Measures for the Rest and Comfort of the Patient.—Under this heading we first have sedation. The mental anxiety and tension of these patients must be relieved by drugs. The barbiturates are useful but usually not sufficient. Paraldehyde, 1 to 3 drachms in water with syrup

instillation, but I was thinking about systemic administration.

DR. COOKE: I think it has an effect. Just as we see patients obtain relief from nasal blockage from the oral administration of one of the ephedrine compounds, so also they receive relief from injected epinephrine. I believe patients get as satisfactory results by taking ephedrine or some of its modifications by mouth as by use of the nasal spray. The danger of local vasomotor reaction is absent.

STUDENT: Does adrenalin fastness ever occur?

DR. COOKE: Whether "fastness" is a correct term or not I am not at all sure. What we generally mean, I think, when we say "adrenalin-fast" is that the patients do not get symptomatic relief, not that they do not get the other effects of adrenalin. I doubt very much whether there is such a thing as adrenalin fastness in the sense that the drug has ceased to exert any pharmacologic effect. If we took blood pressures, or if we watched for the pallor and the tremor, we would see that patients get those effects. Of course, there are many patients who do not get symptomatic relief following the injection of epinephrine, but that is rather because of the character of the bronchial lesion and the condition of the plugging of the bronchi with inspissated plugs of mucus.

In some patients, however, in whom the adrenalin does not seem to produce a satisfactory clinical response, I think aminophylline is often of very great benefit.

It seems to me a little unfortunate that we do not know more about how that drug acts in asthma. I am not aware of any studies which have thrown light upon the pharmacology of aminophylline in asthma.

DR. GOLD: Is it not likely to be due to a depression of the smooth muscle? In animal experiments, bronchospasm is readily relieved by the xanthines as a group. Or would you think that is not the explanation?

DR. COOKE: I think it is one of the possibilities, but in addition to that, it may be that in the bronchi it helps also because it dilates the blood vessels just as it does in the skin to produce the flushing. It may do the same thing in the mucous membrane and help to free and wash out the plugs of mucus by increasing the secretion somewhat, the same as potassium iodide does. Whether or not the dyspnea of asthma is really the result of bronchial constriction is still a moot question.

There is not very much evidence that spasm of the smooth muscle of the bronchi is a very important factor in the production of the asthmatic dyspnea. Witness, for example, the fact that in the pathologic studies we see some hypertrophy of smooth muscle fibers of the bronchi in asthma, but we also see greater hypertrophy in chronic bronchitis which is not characterized by dyspnea. Pathologic studies certainly indicate that in the status asthmaticus cases the major part of the obstruction is due to the actual blocking of the bronchi with the accumulations of mucus, characteristically a very tough, tenacious mucus that even at autopsy can be removed only with difficulty. It is like a rubber stopper when you try to pull it out from the medium-sized or even the larger bronchi.

DR. GOLD: Dr. Cooke, you spoke about dehydration, and you mentioned the use of sugar solutions and also the potassium salts in an endeavor to effect dehydration. We have very much better agents for dehydration than either one of those. Mercupurin can dry people up very effectively.

DR. COOKE: We have tried it in a few cases. It did not in those instances show outstanding results, but I think it would be worth further trial.

DR. TRAVELL: Would it not be more logical to try to liquefy the thick mucus plug?

DR. COOKE: Yes, it would, but we have no agent that I know of at the present time that is particularly satisfactory other than the potassium iodide, which, while useful in many cases, is certainly inefficient in most of them.

STUDENT: I should like to ask what the value of alcohol is in treating asthmatics? If there is any, would that be because of the dehydrating process?

DR. COOKE: We do not prescribe it, but patients use it. I can recall patients who have told us that they know one way of getting relief when they have a very bad time and that is to take enough alcohol to get good and tight. It is probably the sedation rather than any other effect such as dehydration which is helpful. They simply forget their troubles for the time being.

Summary

DR. WALTER MODELL: The treatment of hay fever depends on whether it is of the vasomotor or the hyperplastic type. In the former, treatment consists in avoiding the cause, in immunization, and in symptomatic medication, while in the latter type in which irreversible changes in the nasal mucosa have probably developed and infection may be established, the attempt is made to avoid irritants and to eliminate the infection, by specific (preferably autogenous) vaccines, or surgery if all else fails, and by purely symptomatic treatment.

For the treatment of asthma, the atopic and infective types are separately considered. In

used today to designate the group which will give positive cutaneous or eye reactions, the group which is "skin-sensitive," so to speak, and in which the cause can be determined by a skin test or an eye test. This is not the case in bacterial allergy.

DR. GOLD: Is that not also true of some cases of so-called bacterial infections?

DR. COOKE: In asthma of infective origin we have no test other than the symptomatic test—that is, the production of asthma by the injection of vaccine. We find positive skin tests in infective cases when we have a combination of atopic plus infective manifestations. There is, I think, a good reason for a differentiation of the two types because immunologically they are strikingly different.

DR. GOLD: In what respect?

DR. COOKE: In the one case, the atopic, we have the skin-sensitizing antibody which can be demonstrated by taking the serum of sensitive persons and passively sensitizing a normal skin. That can never be done with the bacterial cases; these give no evidence of a skin-sensitizing mechanism.

DR. GOLD: Are there any other questions?

STUDENT: How real is the danger in the use of epinephrine for an asthmatic attack in cases with hypertension?

DR. COOKE: I do not think hypertension is a serious contraindication. We have had to use it frequently for the relief of an asthmatic paroxysm in such patients. Of course, the actual increase in tension created by epinephrine is not very great, and is not very longstanding, and the relief from the dyspnea is, of course, a very real thing.

It is not uncommon in patients with a moderate degree of hypertension and severe asthma to find, after an injection of adrenalin, that with relief of asthma the pressure goes down rather than up. In other words, the quieting or the lack of respiratory effort, as well as the lack of tension, resulting from comparatively quiet breathing, are in themselves factors in the reduction of pressure following the use of adrenalin.

DR. WHEELER: How often do you find it necessary to give adrenalin intravenously in extremely severe paroxysms? Is it ever advisable? Is it ever necessary?

DR. COOKE: I think the only occasions in which we have used it intravenously are in cases of shock reactions following an overdose, let us say, of a pollen extract or horse serum. In such instances we do at times want prompt and immediate relief; but with more standard methods of preparation and with a better knowledge of allergy, our serious constitutional reactions today are minimal and I have not seen an intravenous injection given for perhaps the last five years. However, we have had to use them at times and that was, of course, for the reactions following an accidental serum administration on the ward to a serum-sensitive person.

In those very serious cases the size of the dose is not of particular importance. Severe adrenalin reactions do not occur even from a fairly large dose. One could, in an emergency like that, give 0.5 to 1 cc. of a 1:1,000 solution intravenously without producing any serious effect.

DR. GOLD: That is remarkable.

DR. COOKE: On the other hand, where one is giving it with the sucrose in the ordinary case of persistent but severe dyspnea one gets quite a prompt effect from 0.2, 0.3, or 0.4 cc., even when diluted in 50 to 100 cc. of sucrose.

DR. GOLD: You would not like to have it made a general practice to give intravenously 0.5 cc. of 1:1,000 of epinephrine?

DR. COOKE: Certainly not. It is indicated only in cases reacting acutely after a dose of some allergen such as serum when the result might be fatal.

DR. GOLD: Are there any other questions?

INTERN: What anesthetic is recommended for operation in the moderately severe chronic asthmatic?

DR. COOKE: In the asthmatics we have used avertin, about 70 mg. per kilogram, for the primary anesthesia. Dr. Grove seems convinced that these patients are apt to have respiratory difficulty during operation with avertin anesthesia, and he has been inclined to discontinue its use. In the last six months or so he has used ether alone for anesthesia. These patients take ether anesthesia very well.

DR. TRAVELL: How about the use of atropine in allergic rhinitis in hay fever?

DR. COOKE: There it is useful, and I think the doses need to be very small.

DR. WHEELER: Dr. Cooke, do any of these newer vasoconstrictors like neosynephrin have any advantage over the older ones, like ephedrine, in the treatment of allergic conditions?

DR. COOKE: No, I do not think so. Most of us use neosynephrin, especially in the nasal cases, as a 1 or 2 per cent spray. I think we have seen more trouble from neosynephrin than perhaps we did from the ephedrine itself. I cannot see that it has lessened the reactions which follow its persistent use.

DR. GOLD: Dr. Cooke, does a dose of ephedrine by injection have any effect on the symptoms in hay fever?

DR. COOKE: Yes, it will relieve an acute nasal blockage temporarily just as it relieves asthma.

DR. GOLD: Of course, it is widely used by

Case Report

INTESTINAL OBSTRUCTION, BILIARY CALCULUS, SENILITY, OPERATION, RECOVERY

HENRY J. VIER, M.D., White Plains, New York

INTESTINAL obstruction resulting from gallstones is of infrequent occurrence, but when it is encountered it is of grave consequence. A recent comprehensive review of the literature by Foss and Summers* ably presents the subject and quotes the oldest patient in the literature reviewed as being 83 years old. The type of treatment in this case is not stated, and whether or not recovery occurred is apparently not known. One of my own cases reported herein is, to the best of my knowledge and belief, the oldest patient on record who has suffered from this condition, was operated upon, and has made a prompt recovery.

Case Report

Mrs. M. McH. (Case No. 724), aged 86, entered St. Agnes Hospital at 7:00 P.M. March 13, 1942, with a chief complaint of severe, cramp-like abdominal pain, accompanied by nausea and vomiting. The onset of the pain occurred eight hours before admission.

She gave a past history of an operation for procidentia twenty years before, with good result. She had remained active and vigorous since then and possessed exceptional mental acuity. In November, 1936, she suffered for about three weeks from slight upper abdominal pain, with nausea and vomiting. No particular tenderness or rigidity was then observed, and no masses were palpable, but a few days following the onset of the attack jaundice developed and persisted for two weeks. All symptoms gradually abated with palliative treatment, but her weight dropped from 152 pounds to 112 pounds in about six weeks.

She then remained active and symptom-free until December, 1941, when she had a similar attack, this time without jaundice or noticeable weight loss. She improved gradually with rest, sedation, restricted diet, ice bag, etc. She was incapacitated at that time for four weeks.

Early on the day of admission her bowels had functioned well, but repeated enemata after she entered hospital were ineffectual. Her temperature was 97.8 F., pulse 78, respirations 26.

Physical examination revealed a very old woman in obvious pain. Eye examination showed the sclera to be clear, the pupils equal and reacting normally to light and accommodation. The patient had both upper and lower dentures. The throat was negative, and there was no enlargement of thyroid or palpable cervical nodes.

The chest was negative, with regular heart sounds, good tone, and no murmurs. Blood pressure was 148/80.

The abdomen was very slightly distended, with moderate, generalized tenderness and rigidity but no palpable masses. Digital examination of the rectum was negative. The extremities were negative.

Examination of the urine showed it to be straw-colored, cloudy, and acid. Specific gravity—quantity was insufficient; reaction for albumin was 3 plus, and for sugar it was negative. Blood examination revealed innumerable leukocytes per high power field, with clumping, no casts, 20 to 25 red blood cells per h.p.f., and large amount of amorphous urates.

The blood count was as follows: erythrocytes, 4,690,000; leukocytes, 15,600; hemoglobin, 83 per cent (Newcomer); polymorphoneutrophils meta II, 9 per cent, segmented, 85 per cent; lymphocytes, 5 per cent; mononuclears, 1 per cent. The blood examination showed the following: hematocrit, 48 per cent; plasma specific gravity, 1.0268; plasma proteins, 6.76 per cent; blood chlorides, 290 mg. per 100 cc.

A flat plate of the abdomen was reported as follows: "Roentgenogram made of the abdomen in the anteroposterior direction shows no abnormal collection of gas suggestive of intestinal obstruction. The outline of the intestines is shown distinctly, and they are normal in size, shape, and position. The psoas margins are sharply outlined. There is a moderate degree of osteoarthritis involving the spine and sacroiliac articulation."

Wangensteen drainage was instituted. Morphine sulfate, 1/6 grain every six to eight hours, as required to control pain, was administered. She received intravenously 500 cc. of 5 per cent sodium chloride, followed by 500 cc. of plasma, 1,000 cc. of 5 per cent glucose in distilled water, and finally 1,000 cc. of Hartmann's solution. All were given slowly.

The pain persisted throughout the night. On the [illegible], the patient presented [illegible] distension. A metallic [illegible] stethoscope, and the greatest tenderness was just to the left of the umbilicus, where a few slightly distended coils of small bowel were palpable. Twenty-five ounces of apparently duodenal contents were observed from the Wangensteen drainage. Another blood examination showed the following: hematocrit, 52 per cent; specific gravity of plasma, 1.0267; plasma proteins, 6.73 per cent; and plasma chlorides, 412.5 mg. per 100 cc.

Operative interference was decided upon, and no attempt was made to use the Miller-Abbott tube. The patient was taken to the operating room at 11:40 A.M., March 14, about twenty-four hours following the onset of her pain. The following is the record of her operation:

"Small amount of clear fluid noted in the peritoneal cavity. Small bowel slightly distended to point from approximately 2 to 3 feet proximal to the ileocecal valve. Obstruction due to exceptionally large gallstone, impacted in the lumen. No further effort was made to explore the abdominal cavity.

* Foss, Harold L., and Summers, J Dent: Ann. Surg. 115: 721-735 (May) 1942.

general their treatment corresponds to that of the vasomotor and hyperplastic types of hay fever, the atopic type of asthma to the former, the infective asthma to the latter. In the former the cause is avoided and immunization is to be tried; in the latter the primary move is against the infection. These outlines follow the generally accepted and well-known patterns of treatment and the details need not be repeated here. What is more in need of emphasis, perhaps, is the treatment of the urgent symptoms and occasional emergencies which do arise and which are not frequently treated by those in general practice. These are the situations which give difficulty when often some simple procedure will bring prompt and dramatic relief.

Bronchial obstruction presents one of these urgent situations. For this condition 3/8 grain of ephedrine by mouth with or without a sedative dose of some barbiturate, or vaporization with 1:100 (not 1:1,000) epinephrine, or a subcutaneous or even an intravenous injection of epinephrine may give relief. For less acute symptoms, 2 mg. of "slowly absorbed" epinephrine (in oil or gelatin) has advantages. Aminophylline, 0.5 Gm. intramuscularly, is also of occasional help.

Oxygen is of use to overcome the oxygen deficiency but it should be remembered that asthmatics usually tolerate nasal catheters better than masks. Dehydration sometimes helps in bronchial obstruction. In practice a low salt diet or a low sodium-ash diet together with an iodide or a chloride of potassium (0.3 to 0.6 Gm. potassium iodide or potassium chloride three times a day) is useful. One successful plan places the patient on such a regimen, and cathartics are administered morning and evening. With sufficient sedation some patients tolerate this treatment for a few days and obtain relief. Bronchial plugs may be directly removed by suction.

For severe reactions following the administration of allergens it may be necessary to administer epinephrine subcutaneously, or in very urgent cases, a small dose intravenously.

ANOTHER RAGWEED POLLEN SURVEY

For the benefit of hay fever victims in New York State who seek havens of relief during the summer and fall, the New York State Department of Health will conduct another survey this year in the Adirondack mountain section to obtain additional information on the concentration of ragweed pollen in the atmosphere.

Preliminary plans call for the installation of pollen count stations at Old Forge, Indian Lake, Speculator, and Loon Lake. All these places are on the rim of the area known to be relatively free from ragweed and its pollen. The purpose of placing the stations in these communities will be to determine whether or not the "free" area has enlarged as the result of ragweed eradication programs which have been in progress in this vicinity for several years.

Similar pollen count stations have been operated by the Department since 1937 with the exception of last year. With the assistance of volunteer attendants, it is expected that the stations will be opened about the middle of August and continued until the first fall frosts. Oil-coated glass slides will be exposed for periods of twenty-four hours each under protective roofs which will permit free movement of air across the oiled surfaces. These slides, which will provide a permanent record of intensity and concentration of ragweed pollen in the air during the season, will be examined under the microscope and the findings recorded for each day of exposure. The results will be available late in the fall after the final counts have been completed.

The Division of Public Health Education will send pamphlets on hay fever and ragweed, together with maps of the "pollen-free" area, to anyone in the state upon request.

DR. S. S. GOLDWATER MEMORIAL FUND

Under the will of the late Dr. S. S. Goldwater, former commissioner of hospitals of the city of New York, Mount Sinai Hospital will receive a sum of money which with supplementary gifts from Mrs. Goldwater will be used to establish a fellowship in hospital administration to be known as the Dr. S. S. Goldwater Memorial Fund. Students and workers in hospital administration who qualify will receive $1,000 annually.—*Medical Record*

FELLOWSHIPS IN HEALTH EDUCATION

The United States Public Health Service has received a grant from the W. K. Kellogg Foundation for the establishment of 20 fellowships leading to a master's degree in public health with a major in health education. The grant will help to meet the need for qualified educators to carry on essential health education both during and after the emergency. The training, which began on March 20, is being given at the University of North Carolina.

Medical Society of the State of New York

Minutes of the House of Delegates—May 3–6, 1943

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It is apparent that this patient, during the time of the recent acute cholecystitis, established a fistula between the gallbladder and the duodenum, through which the large stone causing the obstruction passed."

Procedure.—Following the usual preparation and under regional anesthesia (novocain 1/2 of 1 per cent) a mid-left rectus incision was made, hemostasis was accomplished, and the peritoneal cavity was opened.

Saline tapes were inserted, and at this point G.O.E. anesthesia was begun. The exploring hand readily found the point of obstruction, which was delivered into the wound, and after both limbs of the small gut were "milked back" from the point of obstruction, a soft, rubber-covered clamp was applied. The bowel was grasped with Babcock clamps, and an incision was made in the antimesenteric portion of the bowel in its long axis, with the gallstone, about 3 1/2 cm. in diameter, being lifted out with forceps. The bowel was then sutured in the opposite direction in order not to decrease the diameter of the lumen. First a layer of fine, interrupted chromic catgut was used, and this, in turn, was covered with two additional layers of interrupted sutures of the same material. Five Gm. of sulfathiazole were then placed in the operative area, and the wound was closed with through-and-through steel wire alloy sutures. Clips were put in the skin, and dressings were applied. During the operation, the patient received 500 cc. of plasma. Her immediate postoperative condition showed practically no shock.

The Wangensteen suction was not interrupted during the course of the operation. Forty-eight hours postoperatively the patient developed a pneumonic process at the base of the right lung, which promptly cleared up with sulfathiazole therapy and the use of an oxygen tent.

She experienced very little discomfort and vomited a small quantity of bile-stained fluid on two occasions. She expelled flatus freely on the first day after operation, and the following day her bowels functioned spontaneously and freely. On the fourth postoperative day she again vomited, this time evidently as the result of the sulfathiazole, for when this was discontinued, the vomiting ceased.

Fluids and plasma were given as their need was indicated by repeated blood studies. Ascorbic acid, 100 mg., was administered hypodermically once daily.

The patient celebrated her eighty-sixth birthday on her fourth postoperative day.

Her wound healed per primam intentionem, and she was discharged from the hospital on the seventeenth day after operation. She called at my office on May 23, 1942, and reported that her appetite was good, and her bowels functioned daily. She had lost no weight, and she had suffered no indigestion or pain.

PHYSICIAN'S HANDBOOK ON RHEUMATIC FEVER

Rheumatic Fever in Children—Its Recognition and Management, a 32-page clinical handbook written for the practicing physician, has just been released by the Metropolitan Life Insurance Company.

It assembles under one cover the modern concepts of the disease—its nature, diagnosis, and prognosis and the individual and community problems involved in the care of the patient. A group of distinguished clinicians and the following organizations assisted in its preparation: the American Heart Association, the American Academy of Pediatrics, the Children's Bureau of the United States Department of Labor, and the United States Public Health Service. Other educational material has been developed by the Company in connection with its national program to reach the general public and the medical profession with information on this disease.

Single copies of the handbook are being made available to physicians, without charge, chiefly through the 16,000 field representatives of the Metropolitan Life Insurance Company. Physicians who wish a copy, and who have not obtained one by June 1, should write to Dr. George M. Wheatley, Assistant Medical Director, Metropolitan Life Insurance Company, 1 Madison Avenue, New York, New York.

U.S. PUBLIC HEALTH SERVICE FEATURED IN FILM

Dr. Carl E. Rice, currently in charge of the Community Medical and Dental Section of the U.S. Public Health Service at Bethesda, Marlyand, is featured in RKO's "Medicine on Guard," which tells the story of the typical wartime community faced by urgent health problems arising from the shortage of doctors.

Dr. Rice works in close cooperation with the Procurement and Assignment Service of the War Manpower Commission and when appealed to by the harassed local physician he arranges the relocation of a doctor from a less critical area. This latest "This Is America" two-reel feature depicts the rising incidence of tuberculosis in a typical industrial community, and again it is the U.S. Public Health Service that comes to the rescue. Under the direction of Dr. Herman E. Hilleboe, this menace is being checked through the use of the mobile photofluorographic units which are set up in the factories themselves and take mass chest plates of the workers with a minimum of time loss and expense. The elaborate laboratories of the Bureau of Industrial Hygiene under the direction of Dr. James G. Townsend are shown determining the causes of occupational disabilities and thus keeping the industrial health of America at its usual high level. These aspects of the U.S. Public Health Service's home-front battle against sickness and disease are illuminatingly and entertainingly filmed in "Medicine On Guard."

House of Delegates

Minutes of the Annual Meeting

[*Continued from page 1169, June 15 issue*]

Morning Session

May 4, 1943

The session convened at 9:00 A.M.

SPEAKER BAUER: The House will be in order. Has anyone any further resolutions to introduce?

....There was no response.....

SPEAKER BAUER: If there are no resolutions, we will proceed to the reports of the Reference Committees.

Section 77

Report of the Reference Committee on Report of the Council—Part X: Public Relations and Economics

DR. W. W. STREET, *Onondaga:* The committee's report on its yearly activity is largely informative. No recommendations are included.

We note with sorrow the passing of the former chairman, Dr. Augustus J. Hambrook. His loyalty and qualifications are well known to this House of Delegates and to the medical profession of New York State. We sincerely regret his loss, and we cherish his memory.

The work of the committee has been very ably carried on under the leadership of Dr. Herbert H. Bauckus, who, as a member of the committee, was familiar with the problems at hand. As stated in this report, the most important function of organized medicine has been its part in promoting the winning of the war. This committee has cooperated to the full extent in this effort.

Nursing Shortages. This committee met with the New York State Nursing Council For War Service to discuss and obtain a free exchange of opinion to enable the country to obtain the maximum amount of service from the much needed but limited nursing personnel. It is planned that further conferences on this matter will be held. Your reference committee is in hearty accord with this effort and recommends its continuance.

Workmen's Compensation Problems. During the year, several conferences were held with Dr. David J. Kaliski, director of the Workmen's Compensation Bureau, concerning various phases of compensation problems. It was especially emphasized that county societies should adhere to the minimum fee schedules as a standard for evaluation of medical services, especially with groups. Other questions, such as raising some of the items in the Workmen's Compensation Fee Schedule now in effect and the present application of the principle of free choice of physicians by the employee, were also discussed. Undoubtedly these questions will be reported more in detail in the report of the Workmen's Compensation Committee. Your reference committee recommends the continuance of close cooperation between these committees in the administration of this law. The physician, in active practice, must also do his part to make the law work successfully and smoothly.

Intern Insurance. Your reference committee notes with satisfaction the obtaining of the ruling from our Counsel that interns and resident physicians in hospitals come under the Workmen's Compensation Law when affected by accident or any compensable disease.

Industrial Examinations. Your reference committee heartily commends the committee for reemphasizing its code of ethics to the effect that rejection or demotion of any person shall be based solely upon accepted medical and scientific criteria in industrial physical examinations.

Farm Worker Problem. Your reference committee heartily approves the efforts of this committee in solving the problems of medical care of indigent migratory farm workers.

Coroner System. Your reference committee is in sympathy with the committee's effort to improve the present coroner system to the end that postmortem examinations should be done by properly trained pathologists. It is hoped that continued effort will be made to bring this about.

The work of this committee brings it in touch with many of our other committees, as it bridges the gap between organized medicine, on the one hand, and the lay people of the State on the other. It is hoped that the committee will continue to function with the same high quality of service as in the past.

I move the adoption of the report, which is signed by William W. Street, chairman, David Corcoran, Edwin A. Griffin, William Klein, and Henry S. Martin.

....The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried.....

SPEAKER BAUER: Thank you, Dr. Street!

I should like to say this about Dr. Street: The chairman of the committee was unable to be here, and the night before this House met, Sunday night, I called Dr. Street and asked him if he would take over the chairmanship, which he very kindly consented to do. I appreciate very much his being willing to step into the breach on such short notice.

Section 78. (*See 23*)

Report of Reference Committee on New Business B—Full Citizenship as Requirement for License to Practice

DR. ALBERT G. SWIFT, *Onondaga:* Regarding the resolution on full citizenship for licensure to practice medicine, your reference committee has given careful consideration and study to the resolution presented by Dr. Noehren, of the County of Erie, reading:

"WHEREAS, full citizenship has not been required for the securing of a license to practice medicine in New York State; and

"WHEREAS, most foreign countries will not allow United States physicians who are not citizens to secure a license to practice; and

"WHEREAS, many foreign physicians who have not been in this country long enough to secure citizenship or become acquainted with the ethics and customs of American medicine; and

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rectify the mistakes of the past. I plead for time to solve this problem.

DR. JOSEPH C. O'GORMAN, *Erie:* It seems to me the question is: What is the opportune time? I am sure we can have faith in our Council to determine that. They are the ones in the best position to judge, and that is the purpose of my resolution. I think the amendment—as to who, and when, and where the opportune time—should not be left to this immediate body, but rather to the men whom we select to represent us in the interim. I cannot see why we should immediately determine that question here, and I speak in favor of the resolution.

Does the committee feel that it is the Council that is going to determine the opportune time? Is that part of the report?

DR. SWIFT: Yes.

DR. SIMPSON: I just want to add a thought on this matter. The situation is not as simple as it appears on the surface. When you consider and speak of foreign physicians you have to include Canadians also. Until we definitely get the situation of Canada straightened out, and with that the implications that come from the national government's refusal to allow the status in New York to be disturbed at the present time, we cannot hope to succeed.

Although the leaders of the Legislature feel that something should be done and I think the Board of Regents feels very strongly that citizenship should be required, we were told very definitely that this is not the opportune time to do it.

SPEAKER BAUER: Dr. Bedell, you wanted the floor again?

DR. BEDELL: Yes, sir.

Gentlemen of the House, this is the committee of the whole, which is always greater than a committee of this body, a part. There are more minds at work on this floor on this situation than could possibly gather in a committee. I think if we took the individual and asked him what he thought of his individual community he would say now is the time.

It is all very good for us to be sentimental on the other side, but we are very remiss when we allow these men to come in and become established and thus take the place of our boys that are at the front, and it is time that we began to think of those men. They are the ones that are saving this country, and we are not doing our share to protect their practice for them until they return if we do not take this action now.

It matters little to me personally, but all we do year after year is to say, "No, no, not now." The Board of Regents is also looking for strength to uphold them in their decision. Are we in any way helping them when we fail to take action?

I really think, gentlemen, that the time has come when you should think more of the boys that are away than of those who have come here.

SPEAKER BAUER: Is there any further discussion? If not, the question is on the amendment. The original motion of the committee was that the resolution should be changed to the effect that while full citizenship should be required, the time at which it should be demanded would be left to some opportune time, not definitely stated. The amendment is that the House should recommend that full citizenship be required now. The question is on that amendment. All those in favor of the amendment will say "Aye"; those opposed, "No." The motion appears to be lost, but I think we will take another vote to get the division. Those in favor of the amendment will please rise; those opposed to the amendment will please rise. The motion is carried 58 to 40.

We now have the amended motion before you for consideration. The amended motion is that the House recommend that full citizenship be required now for licensure. Is there any further discussion on the amended motion?

....There was a call for the question, and the motion as amended was put to a vote and was carried.....

Section 79. (*See 33*)

Report of Reference Committee on New Business B—Suggested Amendment to Federal Compensation Act Covering Longshoremen and Harbor Workers

DR. SWIFT: The next report is on the following resolution presented by Dr. Peter Murray, concerning an Amendment to the Federal Compensation Act, reading:

"WHEREAS, employees working as longshoremen and harbor workers are covered against injury or death resulting from accidents while at work by the Federal Compensation Act (Public-No. 803–69 Congress) known as Longshoremen's and Harbor Workers' Compensation Act; and

"WHEREAS, the employer of such workmen is obligated to furnish such medical, surgical, and other attendance or treatment, nurse and hospital service, medicine, crutches, and apparatus for such period as the nature of the injury or the process of recovery may require; and

"WHEREAS, physicians in the neighborhood of docks and harbors where such injury may occur have given such injured employees emergency treatment and have had the patient taken away from them by the employer or his agent and sent to the physician preferred by, or under contract with, the employer; and

"WHEREAS, such physicians who have treated such injured employees have difficulty in collecting fees for services rendered, even for emergency treatment; and

"WHEREAS, the employee, by such procedure, is deprived of free choice of a physician as provided for by the New York State Workmen's Compensation Law and advocated by the ethics of the American Medical Association; therefore, be it

"*Resolved*, that it is the consensus of opinion of the New York County Medical Society that the Federal Compensation Act known as Longshoremen's and Harbor Workers' Compensation Act be amended to allow injured employees to be treated by a physician of their own choice with whom they may stay until the completion of treatment."

We recommend that this resolution, presented by Dr. Murray, for the New York County Medical Society, be adopted. I so move.

....The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried.....

Section 80. (*See 46*)

Report of Reference Committee on New Business B—Planned Parenthood

DR. SWIFT: Concerning the resolution presented by Dr. Trembley, of Franklin County, reading:

"WHEREAS, the American Medical Association has recommended in its resolution of June 8, 1937, that the legality of the use of contraceptives be

"WHEREAS, many of these foreign physicians are not familiar with the health problems and the laws of this State; and

"WHEREAS, there is an undue concentration of refugee physicians in New York State due to the fact that most states insist upon citizenship as a requirement for licensure; therefore be it

"*Resolved*, that the delegates representing the Medical Society of the County of Erie be instructed to petition the House of Delegates of the Medical Society of the State of New York to pass a resolution favoring full citizenship as a requisite for securing a license; and be it further

"*Resolved*, that the Legislative Committee of the Medical Society of the State of New York take steps to have introduced legislation to modify the requirements for licensure so that full citizenship will be a prerequisite."

We note that this problem has been studied by a special committee and that they have made the following recommendation in their report on the status of foreign physicians. They recommend as follows:

"Change the Education Law, Section 1256, Chapter 1, to read: 'Is more than 21 and is a citizen of the United States.'

"Delete 'or has declared his intentions of becoming a citizen' or change the requirements by rule of the Board of Regents."

They further recommend that such a move shall be made at an opportune time.

Your committee recommends that this recommendation on the status of foreign physicians be endorsed.

SPEAKER BAUER: I take it that the committee, then, recommends that on the question of requiring full citizenship for licensure action should not be taken until an opportune time presents itself. Is that correct?

DR. SWIFT: Yes. I move the adoption of this report.

....The motion was seconded.....

DR. ARTHUR J. BEDELL, *Past-President:* Question of information: Who is to interpret this opportune time?

SPEAKER BAUER: Does the committee wish to answer that?

DR. SWIFT: No, I think the House of Delegates should interpret the opportune time.

DR. BEDELL: I would then propose an amendment: Now is the opportune time.

SPEAKER BAUER: Dr. Bedell proposes an amendment that the House recommend that citizenship be required now.

DR. THOMAS B. WOOD, *Kings:* I second the amendment.

SPEAKER BAUER: The amendment has been made and seconded that now is the opportune time for requiring full citizenship. The discussion is on the amendment.

DR. THOMAS M. D'ANGELO, *Queens:* I was on the committee that proposed this recommendation. This matter was given very careful study, and we felt that in view of the situation this was not the opportune time.

I think we all feel that sooner or later full citizenship should be required of all men who practice medicine in the State of New York, but at the present time, when we are engaged in this war, and when in the press and everywhere else there are statements to the effect that there is a supposed shortage of physicians, and when the question especially of race discrimination would be brought forth, your committee feels—and strongly feels—that this is not the opportune time.

SPEAKER BAUER: Is there any further discussion?

DR. BEDELL: May I have the floor?

SPEAKER BAUER: If no one else wants it.

DR. LEO F. SIMPSON, *Monroe:* This matter was taken up by the Legislative Committee this year at the request of the Council with the leaders in the Legislature, and we were flatly turned down on it at this time.

DR. BENJAMIN M. BERNSTEIN, *Kings:* May I have your indulgence for just a few moments? We have two problems involved in this resolution, which must be separated if we are to think clearly and intelligently and unemotionally, if you please.

We have the problem, as I understand it, of the Canadian physician who comes to the northern counties of New York State—comes voluntarily in order to find a better field in which to practice medicine and to earn his money. That problem should be solved undoubtedly, in my humble opinion, by requiring full citizenship.

We have another problem which in its eventuality should also require full citizenship. I take no back seat to any man who is proud of his citizenship and the rights of that citizenship. I have always believed that a man to practice a profession anywhere in this country should first be a citizen of the United States; but we have a problem arising at the present time as an outgrowth of this war and the world catastrophe, which is a thing quite apart. We have men and women who have been dislocated for no reason of their own and because of no choice of their own—men and women who have been drawn out of their beds in the middle of the night and told to go to concentration camps and ordered away from the place where they were born and where their families had lived and resided and prospered for generations. These people have been dislocated and have been brought to these shores as a haven of refuge. While I do not say that these people should be permitted to practice medicine when they arrive here simply because they are refugees, nevertheless we must solve this problem in another way.

I am perfectly willing that citizenship be a requisite for practice in New York State if we take care of the refugee physicians in some other way.

At the National Conference of Post-War Planning in the Waldorf-Astoria Hotel some weeks ago, Frederick H. Keppel, formerly dean of Columbia College and now employed by the United States Government, gave a solution which we must adopt if we are to accomplish two things: first, permit the refugee physician to practice temporarily anywhere in the United States, with a special dispensation from the United States Government in order to prevent relocation of other physicians and provide necessary medical care in those areas where a shortage exists at the present time. In the meantime these people would have the opportunity to take out citizenship if they please, or, God willing, when this war is over they may go back where they came from if that is their desire.

It appears to me that we should step lightly on this problem at the present time for humanitarian reasons primarily. We in New York State are peculiarly situated in that we are the only state in the country that at the present time does not require citizenship.

Well, we have been remiss. We have been remiss a long time. However, this is hardly the time to

SECRETARY IRVING: This is very interesting to me, gentlemen, because I think that there is something of value in it.

First, to answer what has just been said about committees changing with the first of the year in many county societies, it seems to me that the county societies can well imitate or follow the scheme set up in 1937 when we changed our State Society's method so that committees are continuing committees, even though they have to be reappointed with the change of administration. That is one of the reasons why they do better work, so I think that that argument against it goes out of the window.

I do not see why we cannot have the legislative committee chairmen and the secretaries come together at the same time in a conference of secretaries and then shift over to the legislative people, in that way making rather a fuller and a better conference of representatives of county societies in the fall

DR. ARANOW: May I ask for the floor for Dr. Lawrence on this? I should like to know his opinion

SPEAKER BAUER: The Chair will be glad to give the floor to Dr. Lawrence if there is no objection

DR. JOSEPH LAWRENCE: Certainly I see no objection to having this conference in December I think the objection was a valid one with regard to whether the conference will be a conference of chairmen who will be carrying on in the coming year About half of our county societies have their annual meetings in December, and the new president does not usually get his new committees announced until well after the first of the year We have a great deal of difficulty in getting the names of the chairmen of the county society committees in order to have them on the list of the first bulletin, which comes out about the tenth of January

Whether we can deliberate upon the legislation that is to be considered in the coming year—that, of course, would be purely a matter of guess I think it would be good for us to know the procedures that we might have to follow concerning certain measures Take, for instance, the one you have just adopted here regarding full citizenship We will certainly need to have some consideration on how we are going to proceed to advance a measure of that kind, and that could be considered at a conference, but, aside from that, we are in no position at all to act upon any legislation until we see the printed bill. That is why we have our conferences usually in the latter part of January or the first part of February, because then the bills that are coming up are usually before the Legislature, and you can see them in printed form and at the same time the Legislature has usually taken no action by then

So this measure is good in the sense, I believe, as Dr. Irving has said, that conferences between the representatives of the county societies have a very definite value in increasing the morale of the society in any measure that we may want to undertake

SPEAKER BAUER. Is there any further discussion?

DR. HENRY W. MILLER, *Putnam* I would like to hear the opinion of the Chairman of the Legislative Committee on this matter

DR JOHN L BAUER, *Kings* We get together, and we always have some good from that type of meeting—there is no question about it, but there is always difficulty in finding out early the legislative committee personnel of the various county societies There are, of course, some carry-overs, and that is very helpful, but there are always some legislative committees that are about to run out, and you know it happens with the administration of a county society, as it does with any other, that along in the fall there is an inclination to let things slide for the new administration. This being a war year, with travel difficult, and the men exceedingly busy, I doubt whether it would have the value and the practicality that some of you think it would have.

The point has also been made that we do not know definitely what form of legislation or just what legislation will come up, so I am rather in a fifty-fifty position on this question. If you want the added expense and want to take a chance on it and feel that it is a good thing for a war year, I will vote with you on it.

SPEAKER BAUER: Is there any further discussion?

DR LAURANCE D. REDWAY, *Westchester* Westchester's reason for introducing this resolution, as I understand it, was that it would be permissive and not mandatory. Remember that the House of Delegates meets only once a year, that the Legislature is usually out by the end of March, that there is a flood of legislation which needs very careful watching, and that it is necessary in a great many instances to follow along plans which are in the making for the legislation of the next year. This, as I say, was designed to permit the Society, if it is considered advisable, to call that extra session in the fall with, perhaps, the idea that it would facilitate the appointments of these new chairmen much more quickly than has been done in the past and, therefore, aid the Executive Officer and provide a means which could be used if necessary to condense the thoughts of the Society on the forthcoming legislation

DR ARANOW: May I say it is not necessary to have any action of the House of Delegates to permit such a meeting to be held This is permissive, but the chairman of the Legislative Committee now, if he feels it necessary, can call a meeting of the county committee legislative chairmen at any time, if he has the money to do it with

SPEAKER BAUER: Is there any further discussion?

DR SWIFT: Perhaps the resolution should be read again.

> "*Resolved*, that this House of Delegates advise the Council that it favors the holding of such an additional legislative conference with the chairmen of county society legislative committees shortly before the opening of the regular session of the State Legislature, for the purposes enumerated above, and to the end that the coordinated legislative activities of the county and State societies may be more purposeful and effective than they can be under present procedures."

It is not mandatory.

SPEAKER BAUER: Is there any further discussion? If not, the question is on the adoption of the resolution, which states that the House favors the holding of an additional legislative conference prior to the opening of the Legislature. All those in favor of the motion will say "Aye", those opposed, "No" The Chair is in doubt All those in favor please stand, now those opposed please stand The motion is carried by a vote of 55 to 36

Thank you, Dr Swift!

made clear to physicians; that the Association undertake investigation of contraceptive devices and methods; that medical students be instructed in the problems of human fertility; and that the dissemination of contraceptive advice be under medical control; and

"WHEREAS, the law of New York State, according to Justice Crane's opinion, 222 N. Y. 192 (1918), supports the physician 'who in good faith gives....(contraceptive) advice to a married person to cure or prevent disease....'; and

"WHEREAS, the public looks to the medical profession for leadership in medical matters involving the health of the people of the State; therefore be it

"Resolved, that the Medical Society of the State of New York approves the giving of information relating to pregnancy spacing and fertility, by physicians, to married women when in the opinion of the physician such advice is indicated for the maintenance of health or the prevention and cure of disease."

Your committee is of the opinion that the resolution presented by Dr. Trembley, of Franklin County, merely restates the privilege which physicians already legally possess and, therefore, do not recommend it.

SPEAKER BAUER: Do you recommend disapproval of the resolution or that no action be taken?

DR. SWIFT: Disapproval of the resolution.

....The motion was seconded.....

SPEAKER BAUER: The committee recommends disapproval of the recommendation.

DR. ARTHUR J. BEDELL, *Past-President:* I think that is unfortunate. That would lead one who read that hastily to suppose that we are against the law which we have already worked under. I believe it should be differently worded, and that no action is the proper thing.

DR. LEO F. SCHIFF, *Clinton:* I move a substitute for the committee's recommendation—namely, that, since it states something that is already in fact existing, no action be taken.

....The motion was seconded.....

SPEAKER BAUER: The substitute motion has been made and seconded that instead of the committee's recommendation that the resolution be rejected, the House state that since this is a matter which is already in vogue we take no action on it. Is there any discussion on permitting the substitute motion?

....The question was called for, and the motion was put to vote and was carried.....

SPEAKER BAUER: Now you have the substitute motion before you for consideration; in other words, that no action be taken on this resolution. Is there any further discussion?

....The question was called for, and the motion was put to a vote and was carried.....

SPEAKER BAUER: Very well, that resolution has no action taken on it.

Continue, Dr. Swift.

Section 81. (*See 29*)

Report of Reference Committee on New Business B—County Legislative Committees, Additional Meeting in Fall

DR. SWIFT: The following resolution was considered on "Extra Legislative Meeting," presented by Dr. Archibald, of Westchester County:

"WHEREAS, the Medical Society of the County of Westchester believes that the legislative work of the Medical Society of the State of New York and the various county societies would be greatly facilitated by a conference of county society legislative committee chairmen with the State Society Legislative Committee to be held in the late fall each year, in advance of the Legislative Session, in addition to the legislative conference regularly held midway during the Legislative Session; and

"WHEREAS, such a preparatory conference would enable agreements to be reached for the support of legislation mandated by the House of Delegates; would enable county societies having legislative problems to bring them in advance of the meeting of the Legislature to the attention of the other counties and of the State Committee; would enable the State Committee to inform county committees of the prospects of the forthcoming Legislative Session, and, in general, would prepare the county committees for more effective cooperation with the State Committee in its work; therefore, be it

"Resolved, that this House of Delegates advise the Council that it favors the holding of such an additional legislative conference with the chairmen of county society legislative committees shortly before the opening of the regular session of the State Legislature, for the purposes enumerated above, and to the end that the coordinated legislative activities of the county and State societies may be more purposeful and effective than they can be under present procedures."

We recommend the adoption of this resolution, and I so move.

....The motion was seconded.....

SPEAKER BAUER: It has been moved and seconded that the resolution, which in substance calls for an additional meeting of the chairmen of the county legislative committees prior to the opening of the Legislature, be adopted. Is there any discussion?

DR. JOSEPH A. GEIS, *Essex:* Mr. Speaker and Delegates, while it seems to me that this is an excellent proposition, in the past we have had our legislative conference generally in February when the Legislature was about half over; but there is one thing that makes me wonder whether it is practical or not. If you call it before the Legislature is in session, which is just before the first of the year, you may have an outgoing president in your county society with a new one coming in the first of the year, with entirely new committees appointed. The new committee on legislation might have a different idea altogether from that of the old one. I am wondering just how practical this would be in its working out.

DR. HARRY ARANOW, *Bronx:* Mr. Chairman and Delegates, I have had the experience of being on the Legislative Committee for a period of ten years. Whatever the House wants to be done now will be transferred to Dr. Lawrence, and he will have all summer to work on it. He does not know in the beginning of the session what kinds of laws are going to be produced or introduced. There are one, or two, or three things that the House is going to instruct him to do, and that will be done. I cannot see any sense in this at all. I have been to a great many meetings of these delegates from the different county societies, or rather the county society chairmen of legislation, and I cannot see anything that is accomplished by them. There is no harm in the thing, but it will be just a waste of time and a waste of money.

the option of the Surgeon General, it is very unwise to make any distinction in relation to the collection of or the remission of dues of women members of this Society as against men members who enter the armed forces. There should be the same rule for both because, as a matter of fact, today women will be commissioned in the Medical Corps of the Army of the United States exactly as the men are, so there should be no distinction between the two.

SPEAKER BAUER: I think, perhaps, we are getting a little bit off the subject. The question is that dues should be remitted for women physicians if they are serving as physicians.

DR. ROONEY: Mr. Speaker, I think we can clarify that by amending the verbiage of that resolution to state that all members of the Medical Society of the State of New York who are commissioned in the armed forces of the United States or in the Public Health Service may, upon resolution of the Council, have their dues remitted for the period of their service.

ASSISTANT SECRETARY PODVIN: I second that amendment.

SPEAKER BAUER: Would you not want to include in that, "commissioned in the armed forces or the auxiliaries," since there seems to be some question as to whether the auxiliaries are a part of the armed forces?

DR. ROONEY: The auxiliary has not been taken over by the Army. The bill for that is still pending in Congress, but it may very well be done. I don't feel that they will be commissioned in the auxiliaries; they will be commissioned in the Medical Corps of the Army of the United States. There will be no assignment of medical officers to the auxiliary as such. The substitute covers the point. It makes provision for them when they are commissioned in the armed forces of the United States or in the Public Health Service, the same as any male officer.

SECRETARY IRVING: Gentlemen, this whole matter of the auxiliaries came up in regard to one woman physician who was serving as a full-time physician in the WAACS. She was a contract surgeon, but full-time, and certainly that woman physician, in my personal opinion, deserves to have her assessments in the State Society remitted.

DR. ROONEY: Would she not now have that status? These contract surgeons, as I understand it, in the Auxiliary will be commissioned just as soon as the Surgeon General gets around to it, which will probably be in two or three weeks. We will have a new Surgeon General then, and a number of matters are being put off until Kirk takes that office. It seems to me that, whether they are contract surgeons or whether they are commissioned, if they are in the armed forces of the United States they should have their State assessment remitted.

ASSISTANT SECRETARY PODVIN: I should like to second Dr. Rooney's amendment because I think it would clarify matters a great deal. We have in our county a large veterans' hospital, with a large staff of men who are serving in the Public Health Service. These men are civil service men, but they are in the Public Health Service. They are not commissioned by any means, and we have not remitted their dues on that account. As a result there has been considerable controversy, and I should like to see the matter settled, as I think it would be by Dr. Rooney's motion.

DR. LEO F. SCHIFF, *Clinton:* May I hear Dr. Rooney's amendment?

(Dr. Rooney's amendment was read by the reporter as follows: "All members of the Medical Society of the State of New York who are commissioned in the armed forces of the United States or in the Public Health Service may, upon resolution of the Council, have their dues remitted for the period of their service.")

DR. SCHIFF: Very briefly, Dr. Rooney and I had arrived at the same conclusion, and he was a little quicker or more in favor with the Speaker than I was. (Laughter)

I simply wanted to bring out this point: All members of the Medical Society of the State of New York are members on an equal footing, be they men or be they women, and I should feel that the purpose of any resolution that we pass would be to cover all of our members equally without any distinction and to cover all who are serving our country whether in the Army, the Navy, or any other force for the duration of the war.

I certainly am in favor of the amendment and hope that it will be passed unanimously.

SPEAKER BAUER: Is there any further discussion of the amendment?

....The question was called for, and the amendment was put to a vote and was carried.....

SPEAKER BAUER: Now you have before you the amended motion for consideration. Is there any discussion on that?

....The question was called for, and the motion, as amended, was put to a vote and was unanimously carried.....

DR. MONTEITH: Let me say that your committee had no intention at all of discriminating against women physicians. We thought they were being treated the same way as the men in our report, and that is why we made the recommendation.

SPEAKER BAUER: Could we have a reading of the proposition to see whether that is fully covered?

DR. MONTEITH: "Your committee suggested that any remission of dues allowed to women physicians be continued only if their status in the various auxiliary reserves is as physicians."

SPEAKER BAUER: This suggestion was eliminated and the amendment stated that they must be commissioned in the armed forces or in the United States Public Health Service, and that has already been passed.

Have you anything further to report, Dr. Monteith?

DR. MONTEITH: Yes. Your committee desires to offer to the House of Delegates the Council's memorials of deceased officers as follows:

Dr. Terry Monroe Townsend

Dr. Terry Monroe Townsend, of New York City, served organized medicine over many years, until his death on May 16, 1942, in his sixty-sixth year.

He was an original founder of the American Urological Association, President of the New York Urological Society (Branch of the American Urological Association), 1911 to 1912. He was President of the Medical Society of the County of New York in 1933, President of the First District Branch of the Medical Society of the State of New York in 1936, and President of the Medical Society of the State of New York, 1939–1940. At the time of his death he was serving on the Committee on Grievances of the New York State Department of Education.

Dr. Townsend was a Fellow of the American College of Surgeons, and a Diplomate in Urology. He had practiced his specialty since coming to New York in 1899. He was active on the staffs of the New York City Hospital, Morrisania Hos-

Section 82. (See 13)

Report of Reference Committee on the Report of the Council—Part XII: Miscellaneous

DR. STEPHEN R. MONTEITH, *Rockland:* Your Reference Committee on Report of the Council Part XII begs to report as follows:

On the published portion of the report, we approve of Council nominations and subsequent appointments of the members as noted: Dr. Walter P. Anderton, of New York, to the Council on Grievances of the State Department of Education; Dr. O. W. H. Mitchell, of Syracuse, as a member of the Board of Regents Advisory Council on Health and Physical Education; Dr. Peter Irving, of New York, and Dr. H. H. Bauckus, of Buffalo, to sit on the State Nursing Council for War Service; the reappointment of Dr. George R. Critchlow, of Buffalo, as a member of the Nurse Advisory Council of the State Department of Education.

Under the topic of Office Administration and Policies, your committee notes with approval the adoption of pre-employment examinations and the maintenance of full personnel files. We should like to urge on the Council continued investigation of employee pension systems and the early adoption of some suitable action along this line.

It is interesting to note in passing the proposed changes in the bylaws and revision of the Pharmacopeia. We feel that the Medical Society of the State of New York is ably represented in this work.

Your committee approves the Council action in granting leaves of absence while in service to Drs. Wood, Peale, Retan, Rulison, Merrill, and Almour.

Your committee feels that in the remission of State assessments for members entering the armed and public health services the Medical Society of the State of New York is making a noteworthy monetary contribution to our war effort. Your committee suggests that any remission of dues allowed to women physicians be continued only if their status in the various auxiliary reserves is as physicians.

I move the adoption of this portion of the report.

....The motion was seconded.....

SPEAKER BAUER: The motion for the adoption of this portion of the report is before you. It recommends approval of the committee's actions and the Council's actions on these particular matters, but also urges that in the case of the remission of dues for women members it be only if they are acting as physicians in the war effort. Is there any discussion?

DR. JOSEPH A. GEIS, *Essex:* If I understood it right, the report said "acting as physicians in the auxiliary services." Is that correct?

DR. MONTEITH: That is right. It says, "Your committee suggests that any remission of dues allowed to women physicians be continued only if their status in the various auxiliary reserves is as physicians."

DR. GEIS: If they are in the regular services, as they are likely to be now, why not remit them too, the same as the men?

SECRETARY IRVING: That is automatic in the regular services.

SPEAKER BAUER: That would be automatic. As a matter of fact, that has already taken place, if they are in the regular services.

DR. MONTEITH: The point that the committee wished to make was that there is a possibility that women might serve in the WAACS, or the WAVES, or the rest of those alphabetical categories in other capacities than as physicians.

DR. THOMAS M. D'ANGELO, *Queens:* I don't see what difference it makes. If one of our physicians, be it man or woman, enters the service either as a physician or as a private he is serving the Army of the United States, and I don't see that it makes any difference in what capacity such a service is being rendered. His dues should be remitted if he is in the armed forces in any capacity, and the same with our women members.

SPEAKER BAUER: I think it would facilitate matters if we first moved the adoption of the report up to the point about the remission of State assessments, and then discussed that later.

DR. MONTEITH: I so move.

SPEAKER BAUER: If there is no objection, we will do that. Is there any discussion on the adoption of the report up to the question of the remission of dues?

....The question was called for, and the motion was put to a vote and was unanimously carried.....

SPEAKER BAUER: That portion of the report is adopted, and now we come to the question of the remission of dues for women members of the Society. Is there any further discussion?

PRESIDENT-ELECT MCGOLDRICK: May I ask the Secretary to let us know exactly our ruling in regard to male members of the profession and the remission of dues when in the armed services?

SECRETARY IRVING: As I understand the remission of dues for our male members, Dr. McGoldrick, as the Council has put it on the books, it is for those entering the armed forces as physicians.

TREASURER DWIGHT: I do not think so.

SPEAKER BAUER: It does not say that, but provides that remission is granted to any person, a member of the Society, who is serving in the armed forces or the Public Health Service. It does not say in what capacity.

SECRETARY IRVING: I think that is correct, sir, although our interpretation has been the other way.

PRESIDENT-ELECT MCGOLDRICK: I feel that the women physicians, particularly now that they have been granted what they desired for so long, and have practically the same standing in the armed forces as the men, would not care to have an exception made in their favor in any way, and that the same rule should apply to any member of the Society, male or female; that is, if they are engaged in the armed forces, the State assessments should be remitted.

ASSISTANT SECRETARY PODVIN: I was under the impression, Mr. Speaker, that the regulation that was adopted by the Council specified that they must possess a commission; in other words, they must be commissioned in the armed forces.

TREASURER DWIGHT: That is right.

ASSISTANT SECRETARY PODVIN: The reason for that was that the question very often arises concerning men that are serving in the Public Health Service. They are not commissioned men. They are full-time men.

SPEAKER BAUER: They are commissioned.

ASSISTANT SECRETARY PODVIN: Not all of them. We have many men in our county society who are not, and they must pay their dues.

DR. JAMES F. ROONEY, *Trustee:* It seems to me that in view of the fact that Congress has authorized the commissioning of women in the armed forces of the United States, without any specification as to whether they are going to be assigned to the Women's Army Auxiliary Corps, but with the understanding, that they may be assigned anywhere at

the objectives of the Trustees of the American Medical Association in the establishment of full-time modern health services in all areas of the country, we do not feel that the public health situation throughout New York State is in such a deplorable condition as the letter of Dr. Haven Emerson to the Council would indicate. Permissive legislation for the establishment of county health units has been in effect in New York State for over twenty years. At the present time your committee is of the opinion that it would be impossible to obtain properly qualified personnel to man county health units in the fifty-one counties of the State now without full-time county health units.

Mandatory legislation now would be fatal to the program of gradual evolution taking place under our State Department of Health. Any community that so desires may establish public health units suitable for its needs. We believe that the State Department of Health, through its district offices, through county public health committees, their nursing and clinic services, milk inspection, and allied activities are doing as much as is possible to bring to all the people the benefits of an organized public health service. Gradual evolution of the problem seems more appropriate at this time than any recommendation of suggested legislation.

Your reference committee desires in principle to endorse all efforts being made to further Public Health work throughout New York State, and to this end suggests that the matter of full-time county public health units be referred to the Council Committee on Public Health for further study and appropriate action when trained personnel for the establishment of such units becomes available.

I move the adoption of this portion of the report.

. . .The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried. . . .

DR. MONTEITH: Now I move the adoption of the report, as a whole, as amended.

. . . .The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried .

SPEAKER BAUER: Thank you, Dr. Monteith!

Section 83

Proposed Amendment to Bylaws, Chapter X, Section 1

SECRETARY IRVING: Mr. Speaker, there is in Part XII of the Council Report a matter that did not come before that reference committee, which I think should be read now. This is an amendment submitted by the Council to be acted on a year from now. I will read it. It is a small thing, so it will not take very long:

> "*Travel Expenses of Delegates to A.M.A.*—The Council recommends that Chapter X of the Bylaws be amended to allow delegates to the American Medical Association the usual travel expenses such as are allowed to members of Council, Trustees, Censors, and members of committees, instead of only 'railroad transportation and Pullman accommodations.' To that end the Council submits the following amendment:
>
> "In Chapter X, Section 1, of the Bylaws delete the sentence which reads: 'The delegates to the American Medical Association who have attended each session of the House of Delegates of that Association and who shall have filed with the Secretary evidence of such attendance shall be allowed the actual cost of railroad transportation and Pullman accommodations to the place of meeting and return.'; and insert in its place the following sentence: *'The delegates to the American Medical Association who have attended each session of the House of Delegates of that Association and who shall have filed with the Secretary evidence of such attendance shall be allowed traveling expenses.'*"

SPEAKER BAUER: This being an amendment, it will remain in the hands of the Secretary until next year when, after being duly published, it will come before you for consideration.

Section 84

Report of the Reference Committee on the Report of the Council—Part IX: Workmen's Compensation

DR. CARLTON E. WERTZ, *Erie:* Your committee urges that the duties and responsibilities and jurisdiction conferred by Workmen's Compensation Law on the medical societies, both county and State, and which the societies are eager to carry out with the object in view of assuring proper medical care to the injured or disabled worker, be maintained in the law, or in any amendment thereto that may be required as a result of the present Moreland Act investigation. Where the functions of the societies call for the investigation of any allegedly improper practices on the part of physicians, medical bureaus, or laboratories, or for hearings and trials of alleged violators of the Workmen's Compensation Law, the law should be so amended and clarified as to confer upon the societies, or their workmen's compensation boards, definite powers, such as the power to subpoena witnesses, administer the oath, and investigate the books and records of the person or bureaus charged with any violation.

The Workmen's Compensation Law should be so clarified and amended as to indicate the scope of authority of the workmen's compensation boards in reference to complaints and to indicate whether such powers apply only to complaints received by the medical societies or whether it is the function of such boards of their own initiative to seek out offenders in the first instance and bring them to trial. Only when such duties and powers are definitely defined and implemented by adequate authority can the medical society compensation boards fulfill their avowed purposes to help in a proper administration of the Workmen's Compensation Law to the end that adequate medical service be rendered at a fair and equitable cost.

We believe that the functions which were conferred by the Legislature in 1935 upon the medical societies can best be administered by organized medicine, and organized medicine has up to the present time, with limited authority, carried out these functions through the county society committees and the State Society Bureau of Compensation with zeal and vigor and with a true appreciation of the purpose of the 1935 amendments to the Workmen's Compensation Law to remove evils and abuses then existent and to prevent their recurrence.

The medical societies alone cannot be expected, despite their ability and willingness to serve as an auxiliary of the State, to remove or prevent evils, abuses, and maladministration, without a properly functioning Department of Labor, efficiently administered and properly staffed and equipped. It is, therefore, urged that any investigation of workmen's compensation practices be complete and constructive

pital, Lutheran Hospital, Midtown Hospital, West Side Hospital and Dispensary, Reconstruction Unit of Post-Graduate Hospital, Hospitals of the Department of Correction of the City of New York; and Consulting Surgeon to the Sing Sing Prison Hospital.

A man of tremendous and never-failing energy, Dr. Townsend lived a life of highest value to the health of the community, personally and through his many medical society activities. He was a clear-thinking individual who held and expounded strong convictions on the best ways for doctors to practice the healing art and to constantly improve their knowledge with the help of medical societies.

The Medical Society of the State of New York feels deeply the loss of Dr. Terry Monroe Townsend.

Mr. Speaker, I move the adoption of this memorial minute.

....The motion was seconded and was carried by the delegates arising and standing with bowed heads in silence for a minute in honor of their departed colleague.....

DR. MONTEITH: The second one:

Dr. Augustus Joseph Hambrook

Augustus J. Hambrook, M.D., of Troy, New York, died following a long illness, at the Homer Folks Hospital, Oneonta, Otsego County, New York, on July 13, 1942.

He was elected to membership in the Medical Society of the County of Rensselaer in 1909, and served as its secretary during 1912–1913. In 1928 he became a member of the Committee on Public Relations of the Medical Society of the State of New York, on which he served until 1937, when he was elected a councilor and was appointed chairman of the Council Committee on Public Relations and Economics, in which capacity he served the State Society until his demise.

In 1933 and 1934 he was second vice-president of the Third District Branch and in 1935 and 1936 became its president. During these years he also was a censor of the State Society. In 1937 he was a member of the Committee on Trends in Medical Practice and also of the Committee to Confer with the State Hospital Association. The next year he served on the Council Committee on Contacts with the Health and Welfare Departments of the State while at the same time acting as chairman, during that year, of the Council Committee on the Deaf and Hard of Hearing. In 1942 he also acted as a member of the Joint Committee on Dental Health of the State Medical and State Dental Societies.

He was a graduate of Albany Medical College, and during the first World War was a captain in the Medical Corps, U.S. Army.

The Medical Society of the State of New York suffered a great loss in the death of this valuable councilor.

I move the adoption of this memorial minute.

....The motion was seconded and was carried by the delegates arising and standing with bowed heads in silence for a minute in honor of their departed colleague.....

DR. MONTEITH: The third one:

Dr. Grant Charles Madill

Dr. Grant Charles Madill, of Ogdensburg, served the Medical Society of the State of New York over many years until his death in his seventy-ninth year on March 26, 1943. Elected to membership by the St. Lawrence County Medical Society in 1906, he had been a very active worker in county and State societies.

Dr. Madill was president of the Fourth District Branch of the Medical Society of the State of New York in 1911 and 1912; President of the Medical Society of the State of New York, 1919–1920; Delegate to the American Medical Association before and after his presidency for many years. He was a Trustee of the State Medical Society from 1926 to 1935.

Dr. Madill secured his M.D. from Bellevue Medical College in 1886, and interned at Presbyterian Hospital in New York 1886–1888, and then started his long practice in Ogdensburg.

In 1908 he was given the degree of LL.D. by St. Lawrence University, and in 1932 the same degree by New York University. Long interested in medical education, Dr. Madill was a Regent of the University of the State of New York for years and active in that capacity at the time of his death.

Dr. Madill was a Fellow of the American College of Surgeons, and Chief Surgeon, of long standing, at the A. Barton Hepburn Hospital in Ogdensburg.

The death of Dr. Grant Charles Madill was a great loss to the Medical Society of the State of New York and to the State of New York.

I move the adoption of this memorial minute.

....The motion was seconded and was carried by the delegates arising and standing with bowed heads in silence for a minute in honor of their departed colleague.....

DR. MONTEITH: In regard to the report of the Council Advisory Committee to the Woman's Auxiliary, your reference committee desires to endorse approval of the work of the Woman's Auxiliary. We realize that situations contingent on wartime restrictions are limiting the activities of the Auxiliary in some ways, but we urge upon them the continuance of all possible projects at this time especially in the fields of health insurance and matters of health education.

I move the adoption of this portion of the report.

....The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried.....

DR. MONTEITH: *Chiropractic Study*—Your reference committee heartily endorses the suggestion of the Council to appoint a subcommittee of the Council Committee on Legislation to prepare to attend hearings of the Legislative Commission which has been set up to study the subject of chiropractic. In order properly to emphasize by the House of Delegates such action, and in order to lend the full weight of the Medical Society of the State of New York to the work of such a body, your reference committee recommends that the House of Delegates approve that there be appointed a subcommittee of the Council Committee on Legislation to attend meetings of this Legislative Commission.

I move the adoption of this portion of the report.

....The motion was seconded.....

SPEAKER BAUER: You have this portion of the report before you for adoption. In substance you really approved it yesterday in connection with the *Basic Science Law*. Is there any discussion on it?

....The question was called for, and the motion was put to a vote and was unanimously carried.....

DR. MONTEITH: *County Health Units*—While your reference committee is in deepest accord with

1. Litigation.—For the reporting period 120 cases were instituted and 164 cases disposed of as follows:

Settled—48 cases
Terminated in favor of the defendant—111 cases
Judgment for the plaintiff—5 cases

On January 31, 1943, there were pending 369 cases as compared with 413 cases as of January 31, 1942.

The membership is again cautioned against careless, hasty, and unjustified criticism by one physician of the work of another. This often leads to malpractice action. The hazard of such malpractice action is also called to the attention of the members inasmuch as the rights of the physician in these actions are in the hands of lay jurors, and verdicts are frequently rendered where sympathy, passion, and prejudice or bias are responsible for the verdict.

The Council again recommends the loyal support of every member of the Society for the Group Plan of Insurance, which has been in operation for twenty years and has set a record.

Your reference committee endorses this recommendation. We understand that approximately 50 per cent of the members (this figure is on the verbal information by Dr. Bandler) carry the Group Plan Insurance, and we urge the rest of the members to join the Plan.

Appreciation for cooperation with the Counsel is extended to the Yorkshire Indemnity Company and its claim agent, Mr. Horace Crowell, Jr., to the Council Committee, Dr. Bandler, chairman, to the Counsel associates, Mr. William F. Martin and Mr. Thomas H. Clearwater, and to the Counsel's entire staff both legal and clerical.

2. Counsel Work and Activities.—The Counsel has prepared articles in the nature of editorial comment for the NEW YORK STATE JOURNAL OF MEDICINE; also a number of inquiries and answers relating to the legal questions in medicine.

Acting with the Committee on Constitution and Bylaws, the Counsel examined proposed amendments to the constitution and bylaws of a number of component county societies and has rendered advice and made suggestions in connection therewith.

The Counsel drew the contract between the Society and the late Mr. Lighty with reference to the advertising matter in the NEW YORK STATE JOURNAL OF MEDICINE and the *Medical Directory* and the commercial exhibits. The Counsel drew the contract between the Society and Dr. Joseph S. Lawrence, Executive Director; also the contract with Mr. Dwight Anderson as director of the Public Relations Bureau and business manager of the NEW YORK STATE JOURNAL OF MEDICINE and *Medical Directory.*

The Counsel has attended and advised at all meetings of the Council of the Society and meetings of its various committees.

3. Legislative Advice and Activities.—During the 1942–1943 session of the New York State Legislature, the Counsel examined problems affecting the medical profession and gave advice with reference thereto. He also conferred with the Executive Director of the Society. Mr. Clearwater has attended the annual conference of the Council Committee on Legislation and the Chairmen of the County Societies' Legislative Committees held at Albany.

I move the adoption of this portion of the report.

....The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried.....

DR. KRAKOW: The report just referred to was prepared and signed by our late Counsel, Mr. Lorenz Joseph Brosnan, whose untimely death occurred on the twelfth of April, 1943, and the Council Committee on Malpractice Defense and Insurance presents the following memorial, drawn up after his death:

"Lorenz Joseph Brosnan died on April 12, 1943, after a brief illness. Mr. Brosnan had served the Medical Society of the State of New York as Counsel since 1930 and had fulfilled every expectation of that position with a competency second to none. Prior to his designation as Counsel, Mr. Brosnan had been associated with Lloyd Paul Stryker, his immediate predecessor.

"Lorenz Brosnan was born in New York City in 1894 and had attended De La Salle Institute. He was graduated from Manhattan College in 1915 with the degree of A.B. and in 1918 was graduated from the Law School of Columbia University and shortly thereafter was admitted to the Bar. During the thirteen years that Mr. Brosnan served our Society as Counsel he rendered most exacting and varied services, all of which were faithfully performed. His annual report for the year 1942 has just been presented to this House of Delegates and, as always, reveals his vast accomplishments for the good of our organization.

"Mr. Brosnan was a member of the Association of the Bar of the City of New York, the New York County Lawyers Association, the New York State and the American Bar Associations, the Archbishop's Committee of the Laity for Catholic Charities, the Xavier Alumni Sodality, the Manhattan College Alumni Society, the Knights of Columbus, the Society of the Friendly Sons of St. Patrick, the Catholic Club, the Manhattan Club, and the Larchmont Shore Club.

"Lorenz Brosnan is survived by his widow, his four daughters, and two sons. Also surviving are two brothers, John F. Brosnan, a member of the New York Bar, and Captain Vincent J. Brosnan, Catholic Chaplain of the Army of the United States, stationed at Camp Livingston, Louisiana. To all of them the sincerest sympathy and heartfelt condolence of this House of Delegates are extended, and be it recorded that this expression of our deep sense of loss is placed in our minutes and that a copy be transmitted to the family."

I move the adoption of this portion of the report.

....The motion was seconded.....

SPEAKER BAUER: You have before you for the adoption of this portion of the report which consists of a memorial minute to one who for thirteen years was Counsel of the State Society, and who died this past month.

DR. JAMES F. ROONEY, *Trustee:* Briefly, I should like to say something more than this memorial does about Mr. Brosnan. It has been my opportunity for the past eight or ten years to have heard from many justices of the Supreme Court of the State of New York concerning Mr. Brosnan's ability and the credit that he reflected upon this Society as contrasted with some of the unfortunate instances we had had earlier in our career.

I should like to take this moment to pay my own personal tribute to Lorenz Brosnan, one of my best friends, and I think one of the best friends this Society ever had in the legal profession.

SPEAKER BAUER: Thank you, Dr. Rooney!

....The delegates arose and stood with bowed

and involve all parties to the functioning of the law with whom injured workers come in contact from the very inception of their injuries or claims to the adjudication of same by the various branches of the Labor Department, including the claim representatives, insurance carriers, or employers' representatives or organizations. During the past seven years our Workmen's Compensation Bureau has made numerous recommendations for changes in procedure and for additional legislation and has called attention to procedures requiring change—all in the interest of a better functioning of the Workmen's Compensation Law.

The social benefits conferred upon our people by the Workmen's Compensation Law should not be nullified or diminished by ambiguities in the law or maladministration or dishonesty on the part of anyone. The organized medical profession has always maintained a high standard of ethical and professional conduct, and will continue to do so. It is willing and eager to punish any physicians who have been false to these ideals or unmindful of their responsibilities toward the injured worker. It has always been the ideal of our workmen's compensation committees and of the Workmen's Compensation Bureau to function with these ideals in mind. We therefore urge serious consideration by our legislative bodies of the present inadequacies of the law and the addition of such amendments as will strengthen it. In this procedure the Medical Society of the State of New York stands ready to give a full measure of help and cooperation, and we, therefore, recommend that this matter be referred to the Legislative Committee of the State Medical Society, and that they be instructed to cooperate with the Workmen's Compensation Board to secure the proper legislation to accomplish the above recommendation.

Your reference committee approves the report of the Workmen's Compensation Committee completely, especially wishes to stress the section in regard to radiology ratings, and recommends the increased use of examining boards for such ratings. We also agree that the granting of specialty ratings in the other specialties must, too, be based on high standards. The section on ratings of the refugee physicians is of particular importance. His or her ability should be definitely established before granting the specialist's rating.

The committee also recommends that because of the many and various duties of our Workmen's Compensation Bureau and the many demands made upon it, and with the needed increased attention to the Workmen's Compensation Law and necessary amendments to the same, there be the employment of a full-time Medical Director.

I move the adoption of the committee's report which is signed by Carlton E. Wertz, chairman, Roy B. Henline, Charles S. Lakeman, Milton S. Lloyd, and George C. Vogt.

....The motion was seconded.....

SPEAKER BAUER: You have before you the report of the reference committee, which approves in substance the work of the Council Committee on Workmen's Compensation. The final recommendation was acted upon yesterday. Is there any discussion on the report as a whole?

....The question was called for, and the motion was put to a vote and was unanimously carried.....

SPEAKER BAUER: Thank you, Dr. Wertz!

Section 85. (Sec 14)

Report of Reference Committee on the Report of the Council—Part XIII: Malpractice Defense and Insurance and Legal Counsel

Malpractice Defense and Insurance. DR. MOSES H. KRAKOW, *Bronx:* Your reference committee has reviewed the report of the Committee on Malpractice Defense and Insurance and notes that the following changes were made in the Group Insurance Contract:

1. On recommendation of the Committee on Malpractice Defense and Insurance, the Council of the Society on April 28, 1942, approved an increase in the base rate to $32—an increase of $4. No increase in the excess limit rates was necessary.

2. An additional surcharge of 50 per cent of the premium for "cosmetic plastic surgery" was adopted.

Arrangement was made with the carrier, the Yorkshire Indemnity Company, for a reduction of 50 per cent in the annual premium for doctors serving in the military forces of the United States, effective November 1, 1942. The insured doctor upon entering the military services may obtain this reduction, provided the insurance is limited to claims and suits arising out of the professional services rendered to persons in the armed forces of the United States or, in emergency, to civilian patients. Coverage is also extended to liability of the insured for action arising out of the appointment by him of another physician to substitute for him in private practice while he is in the armed forces, providing the substitute physician is a member of the Medical Society of the State of New York and is individually insured in the Group Plan of the Society.

Your reference committee urges all physicians entering the military service to retain their Malpractice Insurance in the Society's Group Plan. However, the committee feels that physicians in the armed forces of the United States or serving in any capacity for the Selective Service or Induction Boards should not be held financially responsible for any judgment resulting from any court action for malpractice when such treatment or examination has taken place in the course of their duties.

Your reference committee recommends that the Council of the Medical Society of the State of New York initiate the necessary measures for the accomplishment of this.

The attention of the members practicing x-ray therapy exclusively is called to the special annual base premium of $30.

The report is concluded by emphasis on the fact that the Yorkshire Indemnity Company is a New York State corporation, completely under the jurisdiction of the State Superintendent of Insurance, who has stated that "all of their assets are held within the United States."

I move the adoption of this report.

....The motion was seconded.....

SPEAKER BAUER: You have before you the report of the Reference Committee on Malpractice Defense and Insurance. It carries a specific recommendation at the end: that the Council should take action to protect members in the armed forces from being subject to suits for malpractice in military service and selective service. Is there any discussion?

....The question was called for, and the motion was put to a vote and was unanimously carried.....

Report of the Legal Counsel. DR. KRAKOW: The report of the Counsel is for the period of February 1, 1942, to January 31, 1943, and is given under three main divisions: (1) litigation; (2) counsel work and activities; and (3) legislative advice and activities.

Service. This is along the same line that we discussed a while ago in connection with members in the military services. Is there any discussion?

DR. JAMES F. ROONEY, *Trustee:* I am not so sure that it is a wise policy for this Society to grant the same privileges to those men who enter the Veterans' Facility as we have already granted to those who are in the armed forces of the United States.

I think all of you will have noted that the resolution says in effect for those men who have entered the Veterans' Facility for temporary duty. They are not members of the armed forces. They are employed by contract with the government, and they are in exactly the same status as contract surgeons, but with less of the military privileges and with no rank.

I am loath to think that, perhaps, there are some members of the medical profession who may be perfectly willing to enter into, and accept a temporarily exempted status with, the Veterans' Facility rather than to take their commission in the armed forces of the United States.

I feel that if we adopt this resolution we are going too far, and I personally hope that it will not prevail.

SPEAKER BAUER: Is there any further discussion?

DR. JOHN J. BUETTNER, *Onondaga:* The reason for introducing this resolution was that one of our members who could not get into the armed forces was able to get into the Veterans' Administration Facility, and he asked to have his dues remitted. The county society remitted his dues. The State Society did not. As it stands at the present time, in order to keep him in good standing in the State Society the county society would have to pay his dues. We are, therefore, asking, in this particular case, for a man who could not get into the armed services but who did enter the Veterans' Administration Facility that his dues be remitted.

DR. ABRAHAM KOPLOWITZ, *Kings:* I should like to offer an amendment providing that the doctor is either above the age for the armed services or has been rejected.

....The motion was seconded.....

SPEAKER BAUER: It has been moved and seconded that the motion be amended by adding to it that the dues of a person entering the Veterans' Service for the duration be remitted provided he is above the age for military service or has been physically rejected for military service.

DR. CHARLES F. MCCARTY, *Kings:* I should like to ask how we are going to find that out. That would be almost impossible to find out.

I should also like to inquire whether we are going to inform all of the doctors who take government civil service jobs at the present time that their dues are remitted and that they have exactly the same status in that respect as those men who go into the Veterans' Bureau who are not in the military service—namely, full remission of their dues as the men in the Army, Navy, and the United States Public Health Service now enjoy for the duration?

PRESIDENT-ELECT MCGOLDRICK: I should like to add a word to Dr. Rooney's and Dr. McCarty's statements. In the first place, this is a request to overrule the action of the Council and make a mandatory order by this body on the Council. We have the rules adopted last year and confirmed so far that the proper mode of action is for the county society to make its request of the State Society through the Council, and their action has up to now been final, and approved at the end of the year by the House of Delegates.

In the first place this would overrule that, and would order special action in this particular group of doctors. The Veterans' Administration continues all the year round. We know there have been many abuses in the Veterans' Bureau since the last war. We know that many doctors have been in it for years without any relation to the war effort or any special patriotic motive except the objective of a doctor in doing his best work for individuals. It may continue and will continue, after the war. It does not involve any war risk. A man may leave it at any moment when his contract expires. It is an optional matter with him. Therefore, I feel it is contrary to the spirit we have had here shown: that the men and women in the armed forces and working for their country are the ones that should have their dues remitted. While the Veterans' Facility is, perhaps, an allied arm, it is not really the armed forces.

SPEAKER BAUER: The question is on the amendment: Shall we add the provision as to age and physical disqualification? Is there any discussion?

DR. KOPLOWITZ: I desire to withdraw that amendment.

SPEAKER BAUER: If there is no objection that amendment will be withdrawn. Hearing none, it is withdrawn, and we come back to the original motion: Shall the dues of men in the Veterans' Service be remitted for the duration?

... The question was called for, and the motion was put to a vote and was lost.....

DR. CARROLL: That completes our report.

SPEAKER BAUER: Thank you, Dr. Carroll!

Dr. Swift, have you any further resolutions?

DR. SWIFT: No.

SPEAKER BAUER: Dr. Masterson, how about New Business A?

DR. MASTERSON: There is one more resolution.

SPEAKER BAUER: Is there any new business to come before the House in the meantime?

Section 89

Proposed Amendment to Bylaws, Chapter II, Section 1

DR. ALBERT A. CINELLI, *New York:* This is an amendment to the Bylaws of the Medical Society of the State of New York, Chapter II, Section 1. Under (c) which now reads:

> "Each component county society shall be entitled to elect as many delegates as there shall be State Assembly Districts in each county at the time of the election, but each component county medical society shall be entitled to elect at least one delegate"

is to be amended to read:

> *"Each component county society shall be entitled to elect delegates in proportion to the number of doctors practicing in the county at the time of election, but each component medical society shall be entitled to elect at least one delegate."*

DR. HORACE E. AYERS, *New York:* I second that.

SPEAKER BAUER: There was an amendment introduced yesterday to the same article. This will remain in the hands of the Secretary for one year, when, after being duly published, it will come before you for consideration.

Section 90

Announcements

SPEAKER BAUER: I have a few announcements to make. The tickets for the Civilian Defense Din-

heads for a minute in silence in honor of Lorenz Joseph Brosnan.....

DR. KRAKOW: I move the adoption of the report of your reference committee, consisting of Moses H. Krakow, chairman, Benjamin M. Bernstein, Samuel E. Appel, John Dugan, and Denver M. Vickers, as a whole.

....The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried.....

Section 86

Report of the Reference Committee on Report of the Council—Part XI: Status of Foreign Physicians

DR. LEO F. SIMPSON, *Monroe:* Your reference committee has carefully considered the recommendations of the Subcommittee on the Status of Foreign Physicians, which have been adopted by the Council and adds its endorsement to that of the Council.

We have, in addition, studied the complementary article published by this committee in the NEW YORK STATE JOURNAL OF MEDICINE of January 15, 1943, under the title of "Status of Foreign Physicians."

As a result of this study, your committee makes the following recommendations:

1. We recommend that the House of Delegates of the Medical Society of the State of New York urge the Board of Regents of the State of New York to refuse, in the future, to admit to examination for licensure any graduate of a foreign medical school, 25 or more per cent of whose graduates taking the examination during the past ten years have failed to pass. This percentage is to be based on the average of the results of the individual years.
2. That the House of Delegates of the Medical Society of the State of New York urge the Board of Regents of the State of New York to limit definitely to three in all the number of examinations that may be taken by any candidate for licensure to practice medicine. Your committee feels that if a candidate cannot pass these examinations after three attempts, it clearly indicates a medical education of a very inferior quality, and one against which the people of New York State should be adequately protected.
3. We recommend the appointment of a continuing committee by the President to be known as the "Committee on Medical Licensure," whose duties shall be to compile, study, and assay such pertinent data as may be of assistance to the Board of Regents to the end that the people of the State of New York be guaranteed physicians of the highest quality on whom they can rely with full confidence.

I move the adoption of the report of this committee, consisting of Leo F. Simpson, chairman, Joseph C. O'Gorman, Maurice J. Dattelbaum, Stephen H. Curtis, and Beverly C. Smith.

....The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried.....

Section 87

Report of the Reference Committee on Report of the Council—Part V: Medical Expense Indemnity Insurance

DR. HARRY S. BULL, *Cayuga:* Your Committee on Report of the Council, Part V, has carefully reviewed the report as published in your JOURNAL. We note with pleasure that there has been progress in this field during the past year; that the principle of voluntary premedical care, sponsored by organized medicine, is being more generally accepted; that it has not been widely accepted has been due in part to many problems: the necessity of replacing the older plans by new contracts; the readjustment of fee schedules, and possibly to lack of interest of members of the profession in localities where the idea of such insurance is new and untried, and, perhaps, in part to the timidity on the part of the professional man to sell this idea to the public.

Your committee appreciates the large amount of time and effort which has been put forward by the committee and its metropolitan subcommittee in attempting to further this project. We would congratulate them on the work already accomplished and would respectfully recommend to this House that these committees be continued to further advance this plan in the year to come.

That is respectfully submitted by the reference committee consisting of Harry S. Bull, chairman, Robert F. Barber, Ada C. Reid, Alfred H. Noehren, and Nelson W. Strohm. *I move its adoption.*

....The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried.....

Section 88. (See 44)

Report of Reference Committee on New Business C—Remission of Dues of Members Serving in Veterans Administration Facility

DR. JOHN D. CARROLL, *Rensselaer:* On the resolution presented by Dr. John J. Buettner, of the Onondaga County Society, concerning the remission of dues and assessments of members of the county societies who are enrolled in the Veterans Administration Facility, reading:

"WHEREAS, at a recent meeting of the Comitia Minora the motion was passed that the delegates to the Annual State Meeting, soon to be held in Buffalo, be instructed to present a resolution to the House of Delegates that the dues and assessments of members of county societies who are enrolled in the Veterans Administration Facility for the duration be remitted while they are temporarily removed from active civilian practice, in the same manner as those members in the United States Public Health Service.

"The reason prompting this action is the fact that one of our members has gone into the Veterans Administration Facility for the duration, and we have carried on considerable correspondence in the hope of having his dues and assessments remitted, only to find that this is not possible unless the House of Delegates takes some action at their coming meeting.

"The Comitia Minora, with the approval of the Onondaga County Medical Society, requests that their delegates introduce the following resolution at the coming meeting of the Medical Society of the State of New York; therefore, be it

"*Resolved*, that members of component county medical societies entering the Veterans Administration Facility on a temporary basis have their dues remitted for the duration."

Your committee recommends the approval of this resolution, and I move the adoption of this part of the report.

.. The motion was seconded.. ..

SPEAKER BAUER: The resolution is before you to permit remission of dues for persons in the Veterans

TELLERS

SPEAKER BAUER: The Chair will appoint the following fifteen men as tellers:

Charles F. McCarty, *Kings*, Chairman
Edgar Bieber, *Chautauqua*
Chester O. Davison, *Dutchess*
John C. Brady, *Erie*
Herbert E. Wells, *Erie*
Fred C. Sabin, *Herkimer*
Leo S. Schwartz, *Kings*
Francis N. Kimball, *New York*
Samuel M. Kaufman, *New York*
Henry W. Miller, *Putnam*
Ezra A. Wolff, *Queens*
Laurance D. Redway, *Westchester*
Charles C. Trembley, *Franklin*
Charles A. Prudhon, *Jefferson*
John J. Gainey, *Kings*

NOMINATIONS AND ROLL CALL

Nominations were then called for and received. ....The assistant secretary called the roll and the following were accounted for:

COUNTY SOCIETIES DELEGATES

Albany
James S. Lyons
Jacob L. Lochner

Allegany
Lyman C. Lewis

Bronx
J. Lewis Amster
Edward P. Flood
Jacob G. Hirsh
Vincent S. Hayward
William Klein
Emil Koffler
Moses H. Krakow
Frederick W. Williams

Broome
Harry I. Johnston
George C. Vogt

Cattaraugus
Leo E. Reimann

Cayuga
Harry S. Bull

Chautauqua
Edgar Bieber
Walter G. Hayward

Chemung
Clifford F. Leet

Chenango
Archibald K. Benedict

Clinton
Leo F. Schiff

Columbia
John L. Edwards

Cortland
(Delegate not present)

Delaware
Robert Brittain

Dutchess
Chester O. Davison
Scott L. Smith

Erie
John C. Brady
Albert A. Gartner
Thurber LeWin
Alfred H. Noehren
Joseph C. O'Gorman
Nelson W. Strohm
Herbert E. Wells
Carlton E. Wertz

Essex
Joseph A. Geis

Franklin
Charles C. Trembley

Fulton
Burchard A. Winne

Genesee
Peter J. Di Natale, Batavia (voted as Vice-President)

Greene
Kenneth F. Bott

Herkimer
Fred C. Sabin

Jefferson
Charles A. Prudhon

Kings
Charles A. Anderson
Albert F. R. Andresen
Benjamin M. Bernstein
Ben A. Borkow
E. Jefferson Browder
Walter A. Coakley
Maurice J. Dattelbaum
John J. Gainey
Edwin A. Griffin
Abraham Koplowitz
Ralph I. Lloyd
John J. Masterson
Harvey B. Matthews
Daniel A. McAteer
Charles F. McCarty
Donald E. McKenna
Philip I. Nash
Abraham M. Rabiner
Charles B. Jones
Irving J. Sands
Leo S. Schwartz
Joseph Tenopyr
Thomas B. Wood

Lewis
Edgar O. Boggs

Livingston
Charles Gullo

Madison
Otto Pfaff

Monroe
Joseph P. Henry
Charles S. Lakeman
Leo F. Simpson
Willard H. Veeder
Warren Wooden

Montgomery
Seymour L. Homrighouse

Nassau
Eugene H. Coon
Louis A. Van Kleeck

New York
Walter P. Anderton
Horace E. Ayers
Emily D. Barringer
Fenwick Beekman
Conrad Berens
Albert A. Cinelli
Harold B. Davidson
B. Wallace Hamilton
Alfred M. Hellman
Roy B. Henline
David J. Kaliski
Samuel M. Kaufman
J. Stanley Kenney
Francis N. Kimball
Richard Kovacs
William B. Long
Madge C. L. McGuinness
Peter M. Murray
Maurice C. O'Shea
William B. Rawls
Ada C. Reid
Beverly C. Smith
Harry E. Ungerleider

Niagara
William A. Peart
Guy S. Philbrick

Oneida
James B. Lawler
Dan Mellen
Frank J. Rossi

Onondaga
John J. Buettner
William W. Street
Albert G. Swift

Ontario
Melville D. Dickinson, Jr.

Orange
Moses A. Stivers

Orleans
John Dugan

Oswego
John F. Burden

Otsego
Alexander F. Carson

Putnam
Henry W. Miller

Queens
Thomas M. D'Angelo
W. Guernsey Frey, Jr.
H. P. Mencken
Jacob Werne
Ezra A. Wolff
Joseph Wrana

Rensselaer
John D. Carroll
Stephen H. Curtis

Richmond
Milton S. Lloyd
Walter T. Heldmann

Rockland
Stephen R. Monteith

St. Lawrence
William G. Cooper
Walter H. Mulholland

Saratoga
G. Scott Towne

Schenectady
Joseph H. Cornell
Charles F. Rourke

Schoharie
David W. Beard

Schuyler
(Delegate not present)

Seneca
Frederick W. Lester

Steuben
William J. Tracy
Herbert B. Smith

Suffolk
John L. Sengstack

Sullivan
Benjamin Abramowitz

Tioga
Corbet S. Johnson

Tompkins
Leo P. Larkin

Ulster
Frederic W. Holcomb

Warren
Morris Maslon

Washington
Denver M. Vickers

Wayne
Ralph Sheldon

Westchester
Robert B. Archibald
Andrew A. Eggston
Laurance D. Redway
Erich H. Restin
Reginald A. Higgons

Wyoming
Henry S. Martin

Yates
Bernard S. Strait

DISTRICT DELEGATES

James G. Morrissey
Burdge P. MacLean
Mahlon H. Atkinson
W. Warriner Woodruff
Norman S. Moore
Peter J. Di Natale (voted as Vice-President)

OFFICERS

George W. Cottis
Thomas A. McGoldrick
Samuel J. Kopetzky
Peter J. Di Natale
Peter Irving
Edward C. Podvin
Kirby Dwight
James R. Reuling, Jr.
Louis H. Bauer
William Hale

COUNCILORS

Herbert H. Bauckus
Charles M. Allaben
Floyd S. Winslow
Clarence G. Bandler
Harry Aranow
Oliver W. H. Mitchell
John L. Bauer
F. Leslie Sullivan

TRUSTEES

Edward R. Cunniffe
William H. Ross
Thomas M. Brennan
George W. Kosmak
James F. Rooney

ner this evening can be secured at the registration desk. Everyone is welcome.

Now, gentlemen, a few words about this afternoon's session: As you know, the election comes this afternoon. We have a very full afternoon. Not only must the House complete its business but there is a meeting of the Society, a general session, and I am afraid things are going to be jammed up, so we want to get through as quickly as we can. I think we will have cleared up all the business by the time we adjourn this morning except the election. The election has been called for 1:00 P.M. The only way the time could be advanced would be by a two-thirds vote. Inasmuch as it has already been announced as an order of business I question whether we could have people get here much before that, but please be here at least at 12:45 P.M. so we can start promptly at 1:00 P.M.

There is another little innovation this afternoon. In previous years, up to last year, the roll has been called twice: once at the opening of the session and once when you voted, and still we never had much of an idea as to who voted and who did not. This year, as you come in the door, you will be checked off, so that will take a little time. Therefore, please try to get here before 1:00 P.M. As the roll is called for voting, your name again will be checked at the ballot box. In that way we will have direct knowledge of those who are present and those who vote. The only thing we will not know is how you vote. (Laughter) Please be here promptly at 12:45 P.M. so that we can get the election out of the way.

Another innovation that we will introduce is that last year, if you will recall, we were held up for about half an hour, and delayed the general session, waiting for the report of the tellers. The Bylaws provide that the Speaker shall appoint tellers but do not say how many. We have always heretofore appointed five. This year I am going to appoint fifteen so that they can do their work a great deal faster. (Laughter) There will be seven groups of two men instead of two groups of two men, and the chairman. I will announce the tellers at the beginning of the session, and I hope all of you will be here. Particularly those of you who have not been on committees are going to be elected tellers, so everybody try to be here between 12:30 and 12:45 P.M. so we can start the minute of 1:00 P.M.

We will have a recess of five minutes while waiting for the report on the one resolution that is to come from New Business Committee A.

....There was a short recess taken at this point...

SPEAKER BAUER: Please come to order, gentlemen. The Chair recognizes Dr. Masterson, chairman of New Business Committee A.

Section 91. (*See 28*)

Report of Reference Committee on New Business

A—Blood and Plasma Exchange Bank

This is on the resolution introduced by Dr. Kenney, of New York, concerning the Blood and Plasma Exchange Bank, and reads:

"WHEREAS, the Medical Society of the County of New York, under the leadership of its Special Committee on Blood Transfusion, is sponsoring a nonprofit organization known as the Blood and Plasma Exchange Bank; and

"WHEREAS, this organization has been approved by the Greater New York Hospital Association; and

"WHEREAS, the Blood and Plasma Exchange Bank has put into effect in the County of New York a uniform procedure of the highest standards for blood banks organized within the hospitals; and

"WHEREAS, the Blood and Plasma Exchange Bank is making available to patients blood and plasma, both fluid and dried, at reduced cost for those who can and wish to pay, and free of charge to those who can only supply blood; and

"WHEREAS, the Blood and Plasma Exchange Bank is storing up a reserve of plasma to be used in the event of a catastrophe; and

"WHEREAS, organized medicine is not only rendering these benefits to the sick, but also retaining for members of the profession the practice of transfusion and the art of preparing plasma within the present hospital system; therefore be it

"*Resolved*, that the Medical Society of the State of New York sponsor the extension of the activities of Blood and Plasma Exchange Banks throughout the State, with the view toward assisting and encouraging Blood and Plasma Exchange Banks to extend to the sick throughout the State, and even to our remotest communities, the benefits they are now rendering; and further be it

"*Resolved*, that the Medical Society of the State of New York refer this matter to a Council Committee or a Special Committtee on Blood Transfusion to accomplish these aims."

Recommendation: The committee approves of this resolution, and moves its adoption.

....The motion was seconded, and as there was no discussion, it was put to a vote and was unanimously carried.....

SPEAKER BAUER: Thank you, Dr. Masterson!

Dr. Clemmons, the Procurement and Assignment Chairman, is here in his bailiwick and will be glad to see any of you who have problems to take up with him.

It has been my experience, that you can consume liquor quicker than food in this hotel, so I suggest you eat first and have your cocktails later, so you can get here promptly.

We will now stand in recess until 1:00 P.M., but please be here at least by 1:00 P.M. because we are going to start then, and no fooling!

....The session recessed at 11:15 A.M.....

Afternoon Session

Tuesday, May 4, 1943

The session convened at 1:00 P.M.

SPEAKER BAUER: The House will be in order.

Section 92

Elections

....Announcements were made that meetings of the Council and the Trustees would be held later in the afternoon, and that Dr. Clemmons would be glad to see any of the committee chairmen at the booth of the Procurement and Assignment Service.....

SPEAKER BAUER: The first order of business is the election of officers. I will announce that there are 162 members of the House of Delegates, both officers and delegates, present. That is a pretty good attendance.

SPECIAL MENTION

To the Army Museum for timely and comprehensive charts on tropical diseases.

The committee feels that all these exhibits, as well as many other worthy demonstrations, merit close scrutiny by members of the profession.

SPEAKER BAUER: I wish to extend to you and your subcommittee our thanks for your work, and to compliment these gentlemen on their well-earned awards.

Section 95

Tribute to Dr. Robert Brittain

SPEAKER BAUER: There is one delegate in this House to whom I think we should pay tribute this morning. He has just cast his ballot for the fifty-first time in this House of Delegates. That is something for the younger generation to shoot at. I will ask Dr. Brittain to arise so we can applaud him. (Applause)

Section 96

Speaker's Appointments to Planning Committee for Medical Policies

SPEAKER BAUER: Yesterday you approved a resolution for the appointment of a committee on long range planning to consist of eleven members, six of whom were to be appointed by the Speaker, the other five to be certain officers of the Society—namely, the President, who next year will be Dr. McGoldrick; the President-Elect, Dr. Bauckus, whom you have just elected; the Secretary, Dr. Irving; the Speaker; and either the Chairman of the Board of Trustees or a member whom he may designate. The Board of Trustees meets this afternoon to elect its chairman, and we will have the name of that man later.

The six men to be appointed by the Speaker are as follows: George W. Cottis, Chautauqua County; Norman S. Moore, Tompkins County; Walter W. Mott, Westchester County; J. Stanley Kenney, New York County; Leo F. Simpson, Monroe County; Herman G. Weiskotten, Onondaga County.

Section 97

Greetings from Waldorf-Astoria, New York

SECRETARY IRVING: Mr. Speaker, I have here a telegram from the Convention Manager of the Waldorf-Astoria Hotel, reading:

> "The management of the Waldorf-Astoria extends best wishes for a successful and constructive meeting. Kindest regards.
>
> J. P. Hoenig, Director of Sales."

Section 98

Presentation of Incoming President-Elect, Dr. Herbert H. Bauckus, to the House

SPEAKER BAUER: Dr. Trick, will you seek out the new President-Elect of the Medical Society of the State of New York, and escort him to the platform?

....Dr. Harry R. Trick escorted Dr. Herbert H. Bauckus to the platform amid applause.....

SPEAKER BAUER: Gentlemen, I present to you your next President-Elect, Dr. Bauckus.

DR. BAUCKUS: Mr. Speaker and Members of the House, you have very generously given me your highest honor, and by that action you have brought great distinction to Erie County. I recognize that, yet I lack the words adequately to express to you my thanks and appreciation for it.

I have had the experience in this past year of working with Dr. Cottis, and I know that I will gain a great deal more benefit from the capable leadership of Dr. McGoldrick in the ensuing year. My association with the members of the House and with the officers will do a great deal to help season me, so that when it becomes my duty to carry on I shall be able to do it with a certain amount of credit to you and I hope to myself.

I know that there are older and wiser and more experienced men and women in the Medical Society of the State of New York, and I shall not forget that.

One of these years we will have a victory year. We hope it will be this year, and that it will be as soon as possible. That victory year will have to be followed by the important work of reconstruction. Both tasks are very important to the American people, and it is most necessary that the medical profession, especially organized medicine, take its part in the development of a good future for all of us.

Again I sincerely thank you very much indeed. (Applause)

SPEAKER BAUER: Thank you, Dr. Bauckus!

Section 99

Presentation of Incoming Second Vice-President, Dr. Norman S. Moore, to the House

SPEAKER BAUER: Dr. Booth will you seek out the gentleman whom we have just elected as Vice-President and escort him to the platform—Dr. Norman S. Moore?

....Dr. Arthur W. Booth escorted Dr. Norman S. Moore to the platform amid applause.....

DR. BOOTH: Mr. Speaker and Members, I present Dr. Moore. (Applause)

SPEAKER BAUER: Delegates, I give you the new Second Vice-President of the Medical Society of the State of New York, Dr. Moore.

DR. MOORE: Members of the House of Delegates, I am overcome by the vote of confidence which you have expressed in Central New York and in me. As I am the baby of the slate, I feel that I should say no more and take lessons from my elders. (Applause)

Section 100

Vote of Thanks to Arrangements Committee

SPEAKER BAUER: Gentlemen, I think it would be very timely indeed if someone would propose a motion of thanks to the Arrangements Subcommittee, both general and local, for their untiring efforts in making this meeting so successful.

....The motion was made from all sides of the room.....

SPEAKER BAUER: It seems to be moved by at least half a dozen people. I am sure we need no discussion on that, and I will ask you to vote by giving a rising vote of thanks to them.

....The delegates arose and applauded.....

Section 101

Vote of Thanks to Scientific Program Committee

DR. ALBERT F. R. ANDRESEN, *Kings:* I should like to propose a vote of thanks to the Scientific Program Subcommittee, Dr. Dexter Davis and his committee, for the excellent scientific program they have prepared for us.

SPEAKER BAUER: I am sure that also needs no discussion. I will put the question to you at once.

EX-PRESIDENTS

James F. Rooney (voted as Trustee)
Arthur W. Booth
Nathan V. Van Etten
Harry R. Trick
William H. Ross (voted as Trustee)
William D. Johnson
Chas. Gordon Heyd
Arthur J. Bedell
Floyd S. Winslow (voted as Councilor)
William A. Groat
James M. Flynn
Samuel J. Kopetzky (voted as Officer)

ELECTION OF OFFICERS, TRUSTEES, AND COUNCILORS

The following officers were elected:
President, Thomas A. McGoldrick, *Brooklyn*
President-Elect and
First Vice-President, Herbert H. Bauckus, *Buffalo*
Second Vice-President, Norman S. Moore, *Ithaca*
Secretary, Peter Irving, *New York*
Assistant Secretary, Edward C. Podvin, *Bronx*
Treasurer, Kirby Dwight, *New York*
Assistant Treasurer, James R. Reuling, Jr., *Bayside*
Speaker, Louis H. Bauer, *Hempstead*
Vice-Speaker, William Hale, *Utica*

The following trustee was elected for a five-year term ending 1948:

Edward R. Cunniffe, *Bronx*

The following Councilors were elected for a three-year term ending 1946:

Charles M. Allaben, *Binghamton*
Ralph T. Todd, *Tarrytown*
Carlton E. Wertz, *Buffalo*

ELECTION OF A.M.A. DELEGATES

The following were elected 1944–1945 delegates: Louis H. Bauer, *Hempstead;* James M. Flynn, *Rochester;* J. Stanley Kenney, *New York;* George W. Kosmak, *New York;* John J. Masterson, *Brooklyn;* Thomas A. McGoldrick, *Brooklyn;* Walter W. Mott, *White Plains;* F. Leslie Sullivan, *Scotia;* Louis A. Van Kleeck, *Manhasset.*

The following were elected 1944–1945 alternate delegates: David W. Beard, *Cobleskill;* Thomas M. D'Angelo, *Jackson Heights;* Edward P. Flood, *Bronx;* William Hale, *Utica;* B. Wallace Hamilton, *New York;* Moses H. Krakow, *Bronx;* Stephen R. Monteith, *Nyack;* Scott L. Smith, *Poughkeepsie;* Moses A. Stivers, *Middletown.*

ELECTION OF RETIRED MEMBERS

The following members were elected to Retired Membership:

S. Josephine Baker, *Belle Mead, N.J.*
Lyman G. Barton, *Plattsburg*
Frank V. Brownell, *Canajoharie*
Frank T. Carmer, *Newfane*
Arthur S. Chittenden, *Washington, D.C.*
Samuel W. Close, *Gouverneur*
Samuel Cochran, *New York*
Halsey E. Cooley, *Wellsville*
William C. Couch, *Watertown*
Walter Gray Crump, *New York*
Louis M. Dusseldorf, *Brooklyn*
Paul G. Frank, *Kew Gardens*
Homer E. Fraser, *New Lebanon*
Emma C. Gibbons, *Rochester*
Charles Graef, *Bronx*
John H. Gutmann, *Albany*
James T. Hardy, *Brooklyn*
Moses Harwich, *New York*
Hiram B. Hawley, *Syracuse*
Henry A. Hoyt, *Watertown*
Lee Maidment Hurd, *Rowayton, Conn.*
George T. Imrie, *Rochester*
Robert F. Ives, *Brooklyn*
Nehemiah Janko, *New York*
Jerome Kingsbury, *New York*
Henry L. Kreis, *Brooklyn*
Eli Long, *New York*
Lewis Henry Marks, *Poughkeepsie*
I. Julius Martinson, *New York*
Frank C. Matthews, *Bronx*
William Moser, *Brooklyn*
Thomas F. Patterson, *Brooklyn*
Paul J. Rosenheim, *New York*
Harry Projector, *Washington, D.C.*
Benjamin L. Schaeffer, *South Harwich, Mass.*
George D. Scott, *New York*
Charles J. Search, *Brooklyn*
Charles R. Seymour, *Binghamton*
Joseph P. Sheridan, *Richmond Hill*
J. Gorse Simmons, *Bronx*
William Steinach, *New York*
Binford Throne, *Anna Marie, Fla*
Henry Wahn, *Bronx*
John E. Welch, *New York*

SPEAKER BAUER: I wish to thank you for your patience with your presiding officer and for your expression of renewed confidence in him. They say if anything happens once, it is an accident; twice, a coincidence; three times, a habit; but what the hell four times is I don't know.

Section 93

Report of Committee on Prize Essays

DR. CHAS. GORDON HEYD: Mr. Chairman and Members of the House of Delegates, only one essay was submitted this year, and in the opinion of the Prize Essay Committee it did not warrant the award of the prize, so no award is made this year.

Section 94

Report of Committee on Awards for Scientific Exhibits

SPEAKER BAUER: The Chair will now hear from Dr. Dickson, chairman of the Subcommittee on Scientific Exhibit Awards of the Convention Committee.

DR. ELTON R. DICKSON: The Subcommittee on Scientific Exhibit Awards, composed of Drs. Walter P. Anderton, Walter G. Hayward, William A. Groat, Nelson G. Russell, and myself, is pleased to render the following report after careful study and evaluation:

SCIENTIFIC RESEARCH

First Award:
Abraham L. Kornzweig, M.D.
Mount Sinai Hospital, New York
"Embryologic Development of the Cornea, Sclera, and Corneo-Scleral Junction"

Second Award:
Udall J. Salmon, M.D.
Samuel H. Geist, M.D.
Charles S. Poole, M.D.
A. Austin Salmon, B.S.
Mount Sinai Hospital, New York
"A Two-Hour Pregnancy Test"

CLINICAL RESEARCH

First Award:
S. A. Goldberg, M.D., Newark, New Jersey
S. N. Blackberg, M.D., Chicago
Phyllis Stanley, M.T., Newark, New Jersey
"The Pathology of Arthritis"

Second Award:
Henry K. Taylor, M.D.
Goldwater Memorial Hospital, New York
"Bone Infarcts and Aseptic Necrosis"

Honorable Mention:
Lee A. Hadley, M.D.
Syracuse University, Syracuse
"Cervical Spine Studies"

Postgraduate Medical Education

Programs arranged by the Council Committee on Public Health and Education of the Medical Society of the State of New York are published in this section of the JOURNAL. *The members of the committee are Oliver W. H. Mitchell, M.D., Chairman (428 Greenwood Place, Syracuse); George Baehr, M.D.; and Charles D. Post, M.D.*

Tuberculosis and Diseases of the Chest

A TEACHING Day on "Tuberculosis and Diseases of the Chest" has been arranged for Friday, July 9, at the Onondaga Sanatorium in Syracuse. The meeting will be opened by Charles D. Post, M.D., chairman of the subcommittee on tuberculosis and diseases of the chest of the Medical Society of the State of New York. The day's schedule is as follows:

3:00 P.M. Opening remarks by Edward S. Godfrey, Jr., M.D., Commissioner of Health, New York State Department of Health.
"Pulmonary Tuberculosis: Early Diagnosis and Differential Diagnosis," by Reuben J. Erickson, M.D., associate professor of medicine, Albany Medical College, and director, Tuberculosis Service, Albany Hospital, with discussion by Herbert C. Yeckel, M.D., president, Onondaga County Medical Society, and George C. Goewey, M.D., secretary, Syracuse Academy of Medicine.
"Bronchoscopy as a Diagnostic Aid in Diseases of the Chest," by Irl H. Blaisdell, M.D., instructor in clinical otolaryngology, Syracuse University College of Medicine.
"Common Thoracic Emergencies," by Ethan Flagg Butler, M.D., principal thoracic surgeon, Hermann M. Biggs Memorial Hospital, Ithaca.

6:00 P.M. Dinner at the Onondaga Sanatorium.
8:00 P.M. "Surgical Treatment of Pulmonary Tuberculosis," by J. Maxwell Chamberlain, M.D., principal thoracic surgeon, Homer Folks Tuberculosis Hospital, Oneonta, and Edward Sawtelle Welles, M.D., surgeon, Saranac Laboratory, Saranac Lake.
"Surgical Treatment of Nontuberculous Lung Conditions," by Ethan Flagg Butler, M.D., and Albert G. Swift, professor emeritus of surgery, Syracuse University College of Medicine.

Chairman of the evening meeting will be Edward C. Reifenstein, M.D., president of the Fifth District Branch, Medical Society of the State of New York.

Reservations for the dinner must be made in advance through Eugene W. Bogardus, M.D., Onondaga Sanatorium, West Seneca Turnpike, Syracuse, New York, chairman of the local committee on arrangements.

Sponsors of the Teaching Day are Cortland, Cayuga, Herkimer, Jefferson, Lewis, Madison, Oneida, Onondaga, and Oswego County medical societies; Central New York Chest X-Ray Conference; [illegible] nty Sanatorium; Syracuse [illegible]: Syracuse University College [illegible] Department of Health; Central New York Roentgen-Ray Society; New York State Department of Health; and the Medical Society of the State of New York.

Symposium on Wartime Nutrition

STUDYING wartime nutrition, physicians and dentists gathered at the Hotel Statler, Buffalo, on June 24, for a symposium on the principles of diet. The meeting opened at 2:30 P.M., with Harold F. R. Brown, M.D., president of the Medical Society of Erie County, presiding. The program included:

2:30 P.M. "The Normal Diet (The Intelligent Use of the Ration Ticket)," by Edgar C. Beck, M.D., assistant professor of medicine, University of Buffalo School of Medicine.
"The Basic Principles of Diet in the T[illegible] of Disease," Donovan J. [illegible]ociate professor of [illegible]. University College [illegible]l Surgeons.
[illegible]e of Vitamins in Therapy," by Fred L. Adair, M.D., Civilian Food Requirements Branch, Food Distribution Administration, United States Department of Agriculture.

7:00 P.M. Dinner meeting, Hotel Statler Ballroom.
Greetings were given by William J. Orr, M.D., president of the Alumni Association of the School of Medicine, University of Buffalo; Ernest A. McMinn, D.D.S., [illegible] District D[illegible] York; and Mrs. Harold B. Johnson, president of the Woman's Auxiliary of the Medical Society of the County of Erie.
"Food and the Future," by W. W. Bauer, M.D., director of the Bureau of Health Education, American Medical Association.

The symposium was presented under the auspices of the Alumni Association of the School of Medicine, University of Buffalo; the Buffalo Academy of Medicine; the Buffalo Dental Association; the Buffalo War Council Nutritional Committee; the Eighth District Branch of the [illegible]y of the State of New York; the [illegible]tal Society of the State of New [illegible] Society of the County of Erie; the New York State Department of Health; and the Woman's Auxiliary of the Medical Society of the County of Erie.

All those in favor will please rise.

....The delegates arose and applauded.....

Section 102

Vote of Thanks to the Speaker

DR. LEO F. SIMPSON, *Monroe:* I wish to move, Mr. Speaker, that this House of Delegates by a rising vote express its appreciation for the masterful way in which our Speaker, Dr. Bauer, has conducted this meeting.

....The delegates arose and applauded.....

SPEAKER BAUER: I thank you very much.

Dr. Wertz has asked me to announce that the Civilian Defense Dinner tonight will take place in the Ballroom at 7:00 P.M. He has asked you to be prompt because some of the speakers have to leave early to make trains.

If there is no further business to come before this House of Delegates, all reference committees having reported, I declare the 137th Session of the House of Delegates of the Medical Society of the State of New York adjourned sine die.

(The session adjourned at 2:25 P.M.)

P

Patterson, R. H. (Lt. Col.)
Letterman Gen. Hosp., San Francisco, Calif.

R

Randell, R. L.
Sinclairville, N.Y.
Ransohoff, N. S.
1100 Park Ave., N.Y.C.
Reich, H. L. (Lt. Com.)
Sampson, Geneva, N.Y.
Reid, H. N. (Lt.)
1413 N. Madison St., Rome, N.Y.
Rizzo, P. C. L.
133 E. 58 St., N.Y.C.
Robbins, J.
Endicott, N.Y.
Robbins, J. V. (Lt.)
A.P.O. 638, c/o P.M., N.Y.C.
Robinson, G. A.
40 E. 61 St., N.Y.C.
Robinson, M. I.
981 E. 14 St., Brooklyn, N.Y.
Rosendale, D. R.
Chadwicks, N.Y.
Rothburd, C. M. (Lt.)
Carlisle Barracks, Pa.
Rubin, L. C.
2 W. 87 St., N.Y.C.
Rubinstein, R. I.
201 Crown St., Brooklyn, N.Y.
Rumble, E. T., Jr.
5312 Tacony St., Bridesburg, Philadelphia, Pa.

S

Sackren, H.
370-A Baldwin Ave., Alabama Village, Chickasaw, Ala.
Sandler, H. R. (Lt.)
Camp Barkeley, Tex.
Sansone, F. X.
162 W. 13 St., N.Y.C.
Sass, R. W.
1192 Park Ave., N.Y.C.
Saxton, H. H.
Mayville, N.Y.
Sayer, A.
1018 E. 163 St., Bronx, N.Y.
Schillinger, R.
390 West End Ave., N.Y.C.
Schleussner, R. C.
131 E. 91 St., N.Y.C.
Scholder, B. M.
58 S. 2 Ave., Mt. Vernon, N.Y.
Schrade, A. M.
1258 Shakespeare Ave., Bronx, N.Y.
Schulz, M. J.
1579 Genesee St., Buffalo, N.Y.
Schwartz, A. (Capt.)
A.P.O. 3784, c/o P.M., N.Y.C.
Schwentker, F. F.
Rockefeller Inst., N.Y.C.
Servoss, H. M. (Lt.)
Hutchinson, Kan.
Seward, F. T.
Goshen, N.Y.
Shannon, J. A.
8 E. State St., Johnstown, N.Y.
Shearer, W. A.
Sherburne, N.Y.
Silverman, S. (Lt.)
Station Hosp., Camp Myles Standish, Mass.
Snyder, J. C. (Maj.)
535 E. 72 St., N.Y.C.
Starks, H. A.
Orangeburg, N.Y.
Steckel, S. S. (Lt.)
Hammond Gen Hosp., Modesto, Calif.
Stempel, B
2710 Bainbridge Ave., Bronx, N.Y.
Stone, N. T. (Capt.)
Fitzsimons Gen. Hosp., Denver, Colo.

T

Tannenbaum, H. (Capt.)
Camp Mackall, N.C.
Terman, I.
175 Sherman Ave., N.Y.C.
Thompson, J. J.
75 First Ave., Gloversville, N.Y.
Thompson, P. C.
7708 Ridge Blvd., Brooklyn, N.Y.

V

Vitale, C. C.
135 Eastern Pkway., Brooklyn, N.Y.

W

Warner, N.
180 Cabrini Blvd., N.Y.C.
Washington, H. A. (Lt.)
818 E. Fayette St., Syracuse, N.Y.
Watson, P. H. (Com., USNR)
Portsmouth, Va.
Weiss, G.
790 Grand Concourse, Bronx, N.Y.
Weitzner, I. (Capt.)
Station Hosp., Camp Stewart, Ga.
Wheeling, K. J.
Port Jervis, N.Y.
Whitman, M. B.
23 W. 184 St., Bronx, N.Y.
Winter, S. S. (Capt.)
Newport News, Va.
Witt, J. J.
Sampson, Geneva, N.Y.
Wohl, H. (Capt.)
Carlisle Barracks, Pa.

EFFECTS OF WAR DISCUSSED AT NEUROLOGIC MEETING

According to Dr. Foster Kennedy, of Cornell University and Bellevue Hospital, more neuroses are caused by petty annoyances than by bombings from planes. Dr. Kennedy dis ussed the effects of bombings on civilians in his talk before the sixty-ninth annual meeting of the American Neurological Association, which was held recently in New York City.

Reports from England and Spain, he said, indicate that the civilian population gives little trouble under bombing but that shelling produces more serious effects. Petty annoyances of a disturbed life, such as lack of sleep and altered plans, are more often the cause of neuroses.

Another speaker at the meeting predicted that new te[illegible] war, would be added to the [illegible]. Commander Francis J. Bra[illegible], U.S.N.R., named as examples of the new terms, "convoy jitters" and "submarine nerves." Commander Braceland also said that psychiatry plays an important part in Army and Navy medicine. Special problems are being presented now with the induction of the 17- and 18-year-old groups.

Other announcements made before the Association included one by Dr. Paul Weiss, of Chicago, who explained his system of storing fragments of nerves for future use as grafts. They are frozen at −150 C., dehydrated in a vacuum, sealed in, and stored in a dry condition.

TUBERCULOSIS AMONG THE ELDERLY

One of the greatest deficiencies in tuberculosis control programs has been the failure to make sufficient use of case-finding technics in discovering the elderly person with undiagnosed pulmonary tuberculosis.

There is much evidence that the older individual suffering from this disease frequently escapes recognition and may act as a spreader of tuberculosis in the community for many years. Elderly tuberculous persons whose disease has become more or less stabilized may be robust, well nourished, and present an appearance of complete health. Many have only minor symptoms and frequently are able to work and to carry on a normal life. They often live out their natural life span, dying, not of tuberculosis, but of some entirely unrelated disease.—R. E. Miller and Beatrice Henderson: *American Review of Tuberculosis.*

Honor Roll

Medical Society of the State of New York

Member Physicians in the Armed Forces

Supplementary List

The following list is the eighth supplement to the Honor Roll published in the December 15, 1942, issue. Other supplements appeared in the January 1, January 15, February 15, March 1, March 15, April 15, and June 1 issues.—*Editor*

A

Alo, J.
2427 Webster Ave., Bronx, N.Y.
Anthony, E. W. (Capt.)
A.P.O. 651, c/o P.M., N.Y.C.
Ayers, H. E.
75 Central Park West, N.Y.C.

B

Backus, L. H.
28 First Ave., Gloversville, N.Y.
Bagg, J. F.
333 Gramatan Ave., Mt. Vernon, N.Y.
Bergman, M. (Capt.)
Newport News, Va.
Berry, G. P.
260 Crittenden Blvd., Rochester, N.Y.
Berry, R. V.
Bangall, N.Y.
Birnbaum, H. B.
2190 Boston Rd., Bronx, N.Y.
Bliss, J. H.
567 First St., Brooklyn, N.Y.
Boutelle, W. E. (Lt.)
Camp Bradford, Norfolk, Va.
Bromberg, W.
1790 Jackson St., San Francisco, Calif.
Bunkin, I. A. (Lt.)
941 Washington Ave., Brooklyn, N.Y.

C

Clemans, J. S.
17 S. Andover Ave., Margate, N.J.
Coriale, A. S.
1636 St. Agnes Ave., Utica, N.Y.

D

Darlington, C. G. (Lt. Col.)
Finney Gen. Hosp., Thomasville, Ga.
Deely, T. H.
393 Seventh Ave., N.Y.C.
deYoanna, A. A.
142 Joralemon St., Brooklyn, N.Y.
Di Iorio, B. V.
1024 Park Ave., Utica, N.Y.
Disney, F. A.
420 Arnett Blvd., Rochester, N.Y.
Duell, J. F.
Jefferson, N.Y.

E

Eilert, J. H.
2773 Briggs Ave., Bronx, N.Y.
Eisenstein, M. I.
1225 Nelson Ave., Bronx, N.Y.
Emerson, E. B., Jr.
16 N. Goodman St., Rochester, N.Y.
Epstein, H.
1555 Grand Concourse, Bronx, N.Y.
Evans, E. R.
246 Genesee St., Utica, N.Y.

F

Felmus, L. B. (Lt.)
Oliver Gen. Hosp., Augusta, Ga.
Field, L. E. (Lt.)
A.P.O. 961, c/o P.M., San Francisco, Calif.
Fisher, A. A.
5 N. Goodman St., Rochester, N.Y.
Foote, L. D.
100 Central Ave., St. George, S.I., N.Y.
Ford, J. R.
268 N. Main St., Gloversville, N.Y.

G

Ginsberg, S.
27 E. Mosholu Pkwy. N., Bronx, N.Y.
Graniero, F. A.
500 Bleecker St., Utica, N.Y.
Greenberg, S. U. (Lt. Com.)
Farragut, Idaho

H

Hageman, H. C. (Capt.)
New Orleans, La.
Hanna, W. H., Jr.
780 Park Ave., N.Y.C.
Harris, J. W.
265 Guyon Ave., Oakwood Heights, S.I., N.Y.
Harris, W. W.
1320 Burdett Ave., Cincinnati, Ohio
Heckel, G. P. (Lt.)
Sampson, Geneva, N.Y.
Hurwitz, S.
2383 N. Park Blvd., Cleveland, Ohio

J

Jacobson, J. J.
11 E. Chestnut St., Kingston, N.Y.

K

Karl, W. C.
31 Grand St., Gloversville, N.Y.
Karwowski, W. J.
New York Mills, N.Y.
Kendrick, T. D.
New Hartford, N.Y.
Kennedy, W. T.
930 Park Ave., N.Y.C.
Khuri, N. N.
43 Main St., Binghamton, N.Y.
Kiffney, G. T.
226-03 137 Ave., Springfield Gardens, N.Y.
Kilstein, R. I.
1175 Park Ave., N.Y.C.
Kleeman, A. M., Jr.
Warwick, N.Y.
Kleiger, B.
1150 Fifth Ave., N.Y.C.
Klieger, I. S.
325 E. 79 St., N.Y.C.
Knapp, I. J.
Nyack, N.Y.
Kortlucke, F. F., Jr.
117-01 84 Ave., Richmond H N.Y.
Kurzrok, M.
115 Ocean Ave., Brooklyn, N.Y.
Kuskin, L.
209 Ocean Ave., Brooklyn, N.Y.

L

Laage, H. A.
134 E. 95 St., N.Y.C.
Lang, H. B.
State Office Bldg., Albany, N.Y.
Lapointe, L. L.
184 Joralemon St., Brooklyn, N.Y.
Larrabee, J. H.
100 S. Market St., Johnstown, N.Y.
Lee, T. E.
121 E. 60 St., N.Y.C.
Lehv, S. P.
114 E. 62 St., N.Y.C.
Lenz, R. K.
141 Kingsboro Ave., Gloversville, N.Y.
Leone, F. G.
3 Hopper St., Utica, N.Y.
Letterese, A. J.
412 E. 117 St., N.Y.C.
Levine, H. M.
2703 Webb Ave., Bronx, N.Y.
Lichty, J. A., Jr.
Strong Mem. Hosp., Rochester, N.Y.

M

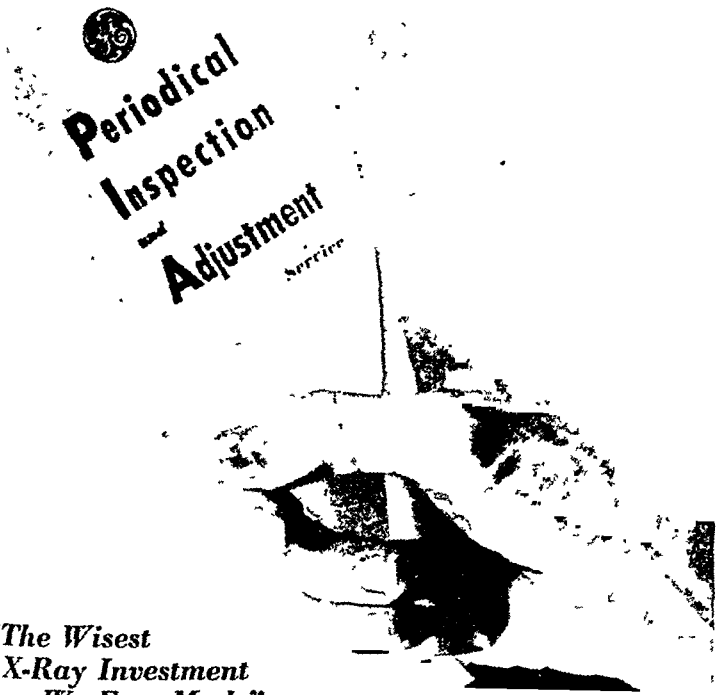
Mahoney, E. B.
260 Crittenden Blvd., Rochester, N.Y.
Maier, J. (Lt.)
315 E. 68 St., N.Y.C.
Mandour, B. A.
A.P.O. 604, c/o P.M., Miami, Fla.
Marquit, B.
116 E. 58 St., N.Y.C.
McManus, J. W.
1885 Brooklyn Ave., Brooklyn, N.Y.
Mead, D. C.
122 Academy St., Fulton, N.Y.
Meredith, R. S.
899 Park Ave., N.Y.C.
Millman, L. J.
2350 Creston Ave., Bronx, N.Y.
Mussio, J. G.
902 55 St., Brooklyn, N.Y.

N

Naso, S. J.
330 Midwood St., Brooklyn, N.Y
Nathan, R. E.
Wichita Gen. Hosp., Wichita Falls, Tex.
Neumann, G. (Capt.)
A.P.O. 4166, c/o P.M., San Francisco, Calif.
Noll, J. E.
Port Jervis, N.Y.

O

Olson, R. A. (Capt.)
Brocton, N.Y.



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Woman's Auxiliary

To the Medical Society of the State of New York

Convention News

THE annual convention of the Woman's Auxiliary to the Medical Society of the State of New York was held at the Hotel Statler, May 2 to 5. One hundred and fifty-two doctors' wives were registered, and 32 Executive Board members and 17 county presidents took time out of their busy lives to attend the meetings. The Erie County Auxiliary gave everyone a hearty welcome and a good time.

After Mrs. J. Emerson Noll, State President, opened the meeting Monday morning, the invocation was given by Dr. Albert G. Butzer, of the Westminster Presbyterian Church, Buffalo. This was followed by a pledge of allegiance to the American flag. Responding to a tribute to the Auxiliary and a welcome to Buffalo, Mrs. John B. Horner thanked Erie County members for the program.

Dr. George W. Cottis, President of the State Medical Society, addressed the meeting. He spoke of the amazing attendance of the doctors, which, he said, represented the influence of their wives. He reminded us that women will have greater and greater importance in politics. We must swing the votes and use our influence along the proper channels, he said.

Mrs. Luther H. Kice, past State President, placed white roses in a vase for the departed Auxiliary members and for members of the armed forces who have given their lives. Mrs. Kice recited "In Flanders' Fields"—a torch for us to carry on.

The list of the departed Auxiliary members includes:

Mrs. Willian Hodge, Niagara County; Mrs. Richard P. Doody, Rensselaer County; Mrs. Dudley Kathan and Mrs. Kent Clark, Schenectady County; Mrs. Charles L. Borzelleri, Sr., Mrs. John Elliott, Mrs. Charles Irish, and Mrs. John F. Glasser, Erie County.

Mrs. J. Emerson Noll, President, gave a complete report of the year's work. Mrs. F. Leslie Sullivan, President-Elect, addressed the meeting, asking for the same cooperation which has been given to the presidents in the past. Very gratifying reports were given by the chairmen of committees and by the county presidents. This year the usual aid, gifts, and remembrances have been furnished the Physicians' Home. This is to be continued. Mrs. G. Scott Towne reported 67 subscriptions to the *National Bulletin*.

At the Annual Dinner Monday night musical selections were given by Miss Audrey Ely, soloist, accompanied by Arthur J. Crosson. Rabbi Joseph L. Fink was the guest speaker. "What kind of Victory will we want?" he asked. "We must rise above hatred and make peace secure in our world." He used the words of Patrick Henry—"Give me liberty or give me death."

On Tuesday the State Medical Society entertained the Auxiliary at a luncheon. Dr. Daniel E. Stedem, of Kenmore, and Dr. Nathan Van Etten, of New York City, were the speakers. Mrs. A. Lawton Bennett was the luncheon chairman; Mrs. Noll was toastmistress.

Seated at the speaker's table were: Mrs. F. Leslie Sullivan, President-Elect, Mrs. Louis A. Van Kleeck, Mrs. William Lavelle, Mrs. Luther H. Kice, Mrs. Carlton F. Potter, Mrs. Carlton E. Wertz, and Mrs. Harold B. Johnson, President of the Woman's Auxiliary to Erie County. Mrs. Johnson presented a beautiful silver tray to Mrs. Noll on behalf of the Executive Board, and orchids were presented to Mrs. Sullivan by Schenectady County.

The entertainment was "Flower Arrangement" by Mr. Thomas Arrigo, of the Hotel Statler Flower Shop.

On Wednesday Mrs. F. Leslie Sullivan, our new President, opened the postconvention meeting. The State Auxiliary presented Mrs. Sullivan with gardenias, and Erie County presented her with roses.

The postconvention meeting was followed by a round-table discussion led by Mrs. W. W. Street.

The Erie County members were hostesses at a tea Wednesday afternoon in the Iroquois Room. All visiting doctors' wives and auxiliary members were their guests.

The gratitude of the Auxiliary members must be expressed again to Erie County for a royal reception and a grand time. We extend our appreciation to Mrs. J. Emerson Noll, the retiring President, and our best wishes to Mrs. J. Leslie Sullivan, our new President. Let us renew our pledge and give Mrs. Sullivan the same wholehearted cooperation that has been shown in the past.

Officers of the Woman's Auxiliary

Executive Board, 1943-1944

Officers

President—Mrs. J. Leslie Sullivan
President-Elect—Mrs. Carlton E. Wertz
First Vice-President—Mrs. E. A. Griffen
Second Vice-President—Mrs. C. R. Seymour
Recording Secretary—Mrs. H. F. Pohlman
Corresponding Secretary—Mrs. E. M. Stanton
Treasurer—Mrs. L. A. Van Kleeck

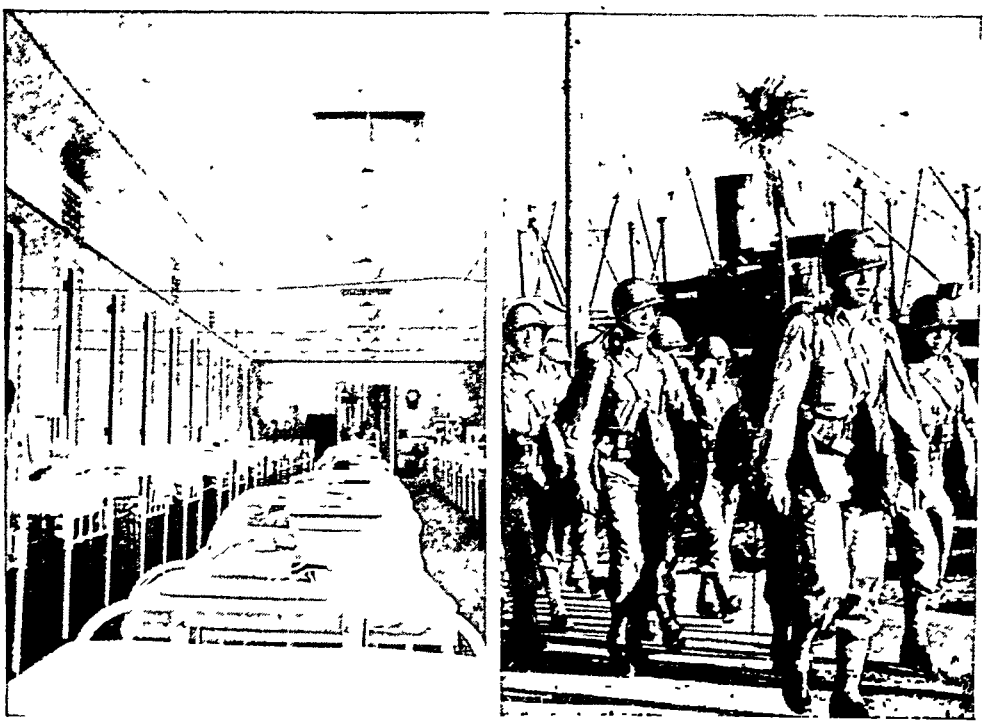
Directors

One year—Mrs. L. H. Kice, Mrs. O. Pfaff
Two years—Mrs. G. B. Adams, Mrs. J. Robertson
Three years—Mrs. J. E. Noll, Mrs. William Lavelle

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Finance—Mrs. D. J. Swan
Historian—Mrs. H. Buckbee
Hygeia—Mrs. M. Schultz
Legislation—Mrs. A. Madden
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[Continued on page 1262]



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• 'Sulfasuxidine' succinylsulfathiazole, Sharp & Dohme's new, clinically nontoxic intestinal bacteriostat, shortens hospitalization[1] by contributing to uncomplicated convalescence after abdominal surgery and is also effective in treatment and control of bacillary dysentery,[2] one of the major hazards of military life.[3]

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This new compound is administered orally for three to five days prior to hospitalization in order to alter the bacterial flora of the intestinal tract and reduce the possibility of peritonitis. Post-operative administration of 'Sulfasuxidine' succinylsulfathiazole contributes to smoother, shorter convalescence.

Bacillary dysentery responds to 'Sulfasuxidine' succinylsulfathiazole promptly at all stages of the disease and carriers also appear to be favorably influenced by the drug.[4]

The remarkably low toxicity of 'Sulfasuxidine' succinylsulfathiazole is partly explained by the fact that the drug is poorly absorbed from the intestinal tract . . . less than 5% is excreted by the kidneys.

'Sulfasuxidine' succinylsulfathiazole is supplied in compressed, 0.5 Gm. tablets, in bottles of 100, 500 and 1,000. Sharp & Dohme . . . Philadelphia

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1. J.A.M.A., 120:265, Sept. 26, 1942. 2. Poth, E.J., and Cheno, B.M., Jr., Knotts, F.L., Journal of Lab. and Clin. Med., 28:162, Nov., 1942. 3. New York State J. Med., 42:789, April 15, 1942. 4. J.A.M.A., 119:615, June 20, 1942.

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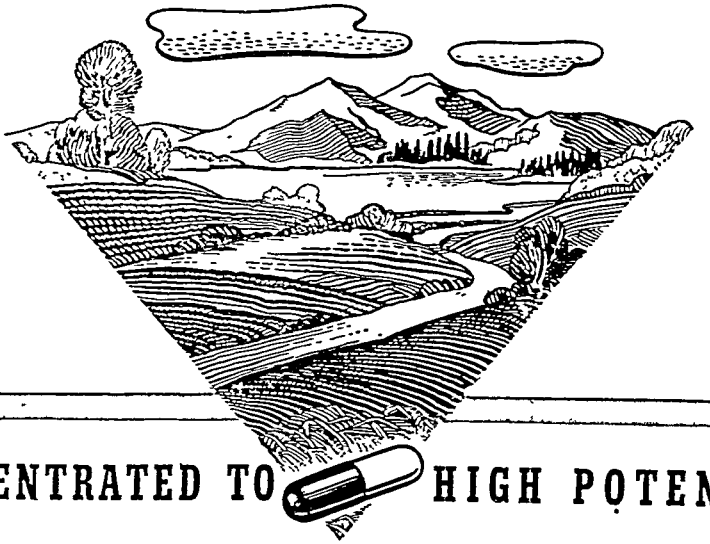


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**Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154. Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60. Proc. Soc. Exp. Biol. and Med., 1934, 32, 241. N. Y. State Journ. Med., Vol. 35, 6-1-35, No. 11, 590-592*

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[Continued from page 1258]

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Mrs. F. L. Sullivan (ex officio)

Special Committee

National Bulletin—Mrs. G. Scott Towne

Suggestions

1. Subscribe to the *National Bulletin.*
2. Before the Fall Board meeting, which will be held at Schenectady in October, read the article in the December, 1942, *National Bulletin,* by the Georgia State Auxiliary, about forming a Aide Corps.
3. Buy the new *Handbook.*

County News

Albany. Mrs. James S. Lyons is the newly elected president.

The auxiliary had their annual luncheon at the De Witt Clinton Hotel.

Oneida. Mrs. D. D. Reals, was elected president of the auxiliary, at its annual luncheon meeting at the Yahnundasis. Mrs. Fred G. Jones, president, presided.

Rensselaer. A card party was sponsored auxiliary at the home of the president, Mrs. F. Connally.

"CRYPTIC NOSTALGIA" IN SERVICEMEN

In a recent issue of *War Medicine,* Lieut. Comdr. C. L. Wittson, Lieut. Comdr. H. I. Harris, and Lieut. W. A. Hunt, of the Medical Corps, U.S. Naval Reserve, describe a condition which they call "cryptic or hidden" nostalgia in servicemen. According to the authors, cryptic nostalgia differs from ordinary homesickness in that it is a home fixation that may easily be confused with simple schizophrenia.

A patient suffering from this disorder appears calm and shows no agitation. Nevertheless, he is at all times completely preoccupied with thoughts of his home and friends, and everything else is excluded from his mind.

Such a condition may result in maladjustment, for the recruit will have difficulty learning and will be generally unreliable and incompetent.

NEW USES FOR VITAMIN A

At a recent meeting of the American C Society two advances in the use of vitamin reported. One is the treatment of wl cough with the vitamin, and the other is t covery that the protein constituent enables tl to store a supply of vitamin A for emergen

Dr. August B. McCoord, of the Univer Rochester, and his coworkers, reported th deficient in vitamin A have little chance vival when inoculated with whooping coug those with sufficient amounts of the vitar cover from the disease.

Study of the essential protein factor, tryto showed that its absence was accompanied low content of vitamin A stored in the liver the livers of animals that received the sul in their diet had a high vitamin A content.

POSTWAR TUBERCULOSIS THREAT

In the February *Bulletin* of the National Tuberculosis Association, Dr. Robert Plunkett, General Superintendent of Tuberculosis Hospitals, New York State Department of Health, predicted that tuberculosis will assume the proportions of a plague in Europe as the war progresses.

For control of the disease, Dr. Plunkett outlined a threefold plan, listing these suggestions: a partnership of governmental and private agencies in developing the control program; the use of American physicians and x-ray technicians who have gained experience with the armed forces; and the foreign service of the vast amounts of x-ray ment employed in the examination of servi

Dr. Plunkett has also reported that for th time in twenty years the tuberculosis death ra shown an increase. The total gain was 113 d or a 4.7 per cent gain.

The majority of the 922 new cases discove 1942 were found through the use of x-ray, b the Selective Service program and in the s now being conducted in mental hospitals.



KE so many women in their forties, she's joined her adults of the family in the task of winning e war. She's thinking more of passengers than tea parties . . . more of switches than of sew-g. But her thoughts are also on another prob-n—of how the menopause will affect her.

Two decades ago women were inclined to fear ir forties. Today they may face them with con-ence, secure in the knowledge that adequate rogenic therapy will often relieve the distress-3 vasomotor symptoms of the menopause. omen can be kept physically and emotionally and "on the job."

Striking therapeutic results have been obtained th both natural and synthetic estrogenic sub-nces. Both Amniotin (natural estrogenic sub-nce) and Diethylstilbestrol Squibb (synthetic rogen) are available in dosage forms for oral, podermic, and intravaginal administration. ethylstilbestrol is lower in cost and, in contrast natural estrogens, is only slightly less effective lly than intramuscularly. However, its high ency necessitates cautious use and indicates advisability, in some instances, of building up the estrogenic level with Amniotin by injection and then of maintaining therapy with small oral doses of Diethylstilbestrol.

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AMNIOTIN . . . A highly purified, non-crystalline preparation of naturally occurring estrogenic substances derived from pregnant equine urine. Its estrogenic activity is expressed in terms of the equivalent of international units of estrone. Available in capsules for oral administration; solution for intramuscular injection; and vaginal suppositories.

DIETHYLSTILBESTROL . . . A low cost synthetic estrogen possessing the physiologic properties of estrogenic substances derived from natural sources. Highly effective orally. Available in tablets for oral administration; solution for intramuscular injection; and vaginal suppositories.

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Medical News

New A.M.A. Council on Medical Care

THE House of Delegates of the American Medical Association voted at the A.M.A. meeting in Chicago to establish a council on medical service and public relations, to "streamline" medical practice in America with changing times.

Following the action of the House, the Board of Trustees of the A.M.A. appointed the new group to tackle the problems of working out a system that will make possible the provision of satisfactory medical care for all the people with the least possible interference by nonmedical agencies.

The new group consists of six members of the A.M.A. "geographically distributed over the United States," in addition to the president, the immediate past-president, the secretary, and a member of the board of trustees.

The new council includes the following physicians: Louis H. Bauer, of Hempstead, L.I.; John H. Fitzgibbon, of Portland, Ore.; Alfred W. Adson, of Rochester, Minn.; James R. McVay, of Kansas City; E. J. McCormick, of Toledo; W. S. Leathers, of Nashville; Brig. Gen. Fred H. Rankin, of Lexington, Ky., retiring president; James E. Paullin, of Atlanta, president; Olin West, of Chicago, secretary; and Roger I. Lee, of Boston, chairman of the board of trustees.

The duties of the new council were officially stated to be the following:

"To make available facts, data, and medical opinions with respect to timely and adequate rendition of medical care to the American people.

"To inform the constituent associations and component societies of proposed changes affecting medical care in the nation.

"To inform constituent associations and component societies regarding the activities of the council.

"To investigate matters pertaining to the economic, social, and similar aspects of medical care for all the people.

"To study and suggest means for the distribution of medical services to the public consistent with the principles adopted by the house of delegates.

"To develop and assist committees on medical service and public relations originating within the constituent associations and component societies of the American Medical Association."

The resolution provided that for the first year six members who are not officers of the associat shall be appointed by the board of trustees. term of membership is for three years. At the of the first year, however, there will be an elect of two members for one year, two for two ye and two for three years. After the first year, board of trustees will present to the house of d gates for election to membership on this counc list of three nominees for each vacancy. The ch man will be selected by the council from its elec members.

The house of delegates also appointed an eig man committee on postwar medical service, signed to study postwar medical problems, includ the care of the civilian populations in counti occupied by American troops.

It was pointed out that the civilian populat of such countries must receive medical care to p tect the American troops that will live in th midst.

The committee is headed by Dr. Roger I. Lee, Boston. Other members are Brig. Gen. Rank Francis Blake, of New Haven, Connecticut; J Paullin; Harrison H. Shoulders, of Nashvil Alan Gregg, medical director of the Rockefel Foundation, New York; Captain William Agne U.S. Navy, Washington; and Warren F. Drap Assistant Surgeon General, Public Health Servi Washington.

Dr. Herman L. Kretschmer, Chicago urologi who served for many years as treasurer of t A.M.A., became president-elect of the associati at the annual election held by the delegates. will assume office as president in 1944.

Other officers elected were Dr. John J. Ames pediatrician, of Denver, vice-president; Dr. Josi J. Moore, Chicago pathologist, treasurer. West was re-elected secretary, Dr. Shoulders w re-elected speaker of the house, and Dr. R. Fouts, of Omaha, was re-elected vice-speaker. Ernest E. Irons, of Chicago, and Dr. William Braasch were re-elected members of the board trustees.

The delegates selected New York for their 19 convention, providing that the war is ended by th time. St. Louis was selected for the convention 1945, and San Francisco for 1946.

Kirk Is Surgeon General of Army

ON JUNE 1 Major Gen. Norman T. Kirk became Surgeon General of the Army, succeeding Major Gen. James C. Magee, who retired with an excellent record for leadership and for the maintenance of high standards in the military medical service. The medical department of the Army has grown in size and importance beyond anything ever previously anticipated. There are now 34 general hospitals and about 500 station hospitals in the continental United States and a great number of other army hospitals scattered throughout the world. Brigadier General Kirk, who as surgeon general will hold the rank of major general, relinquished at the time of his appointment the position of commanding officer of the new Percy Jones General Hospital at Battle Creek, Michigan. In 1919 General Kirk was in the surgical service Walter Reed General Hospital and later had dut at Johns Hopkins University Hospital, the Mass chusetts General Hospital, and at the Station Ho pital at Fort Sam Houston, Texas, where he becam chief of the surgical service. He served subs quently as chief of the surgical service at Sternber General Hospital in Manila, the Station Hospital Fort Mills in the Philippine Islands, again Sternberg, and later at the Walter Reed Gener Hospital in Washington. General Kirk addresse the House of Delegates of the American Medica Association at its opening session in Chicago o June 7. . . . *J.A.M.A.*

[Continued on page 1266]

INCREASED *Potency*

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More VITAMIN B_1 · More VITAMIN B_2 · More NIACINAMIDE

The patient for whom Betaplexin is prescribed now receives a substantially greater dosage of the various factors which comprise the vitamin B complex.

The potency of the declared factors in the various forms of Betaplexin is as follows:

	ELIXIR	SYRUP	TABLETS OR CAPSULES
	Each Teaspoonful (5 cc.)	Each Teaspoonful (5 cc.)	Each Tablet or Capsule
VITAMIN B_1	3 mg. (1000 U.S.P. units)	3 mg. (1000 U.S.P. units)	1.5 mg. (500 U.S.P. units)
VITAMIN B_2	1 mg.	1 mg.	0.5 mg.
VITAMIN B_6	0.3 mg.	0.675 mg.	0.1 mg.
NIACINAMIDE	10 mg.	10 mg.	5 mg.
PANTOTHENIC ACID	0.75 mg.	1.8 mg.	0.275 mg.

All forms also contain other factors including biotin, choline, inositol and para-aminobenzoic acid.

HOW SUPPLIED

Betaplexin Elixir and Syrup: Bottles of 4 and 16 fluidounces and 1 gallon.
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[Continued from page 1264]

County News

Clinton County

The semiannual meeting of the county society was held on May 18 at the Hotel Witherill in Plattsburgh.

A business meeting at 5:30 P.M. opened the program, followed by dinner in the fountain room at 6:30 P.M..

After dinner Dr. Paul C. Clark, of Syracuse, assistant professor of clinical medicine, Syracuse University College of Medicine, gave an address on "Blood Plasma Therapy and Whole Blood Transfusion."

The instruction was arranged by the Council Committee on Public Health and Education of the Medical Society of the State of New York and the New York State Department of Health in Cooperation with the Medical Division of the office of Civilian Defense and the Health Preparedness Commission of the State of New York.—*T. A. Rogers, Secretary*

Columbia County

The regular semiannual meeting of the county society was held at the Columbia Country Club on May 11.*

Dutchess County

Dr. J. Spottiswood Taylor, director of laboratories, of Kingston, was the speaker at a meeting of the county society at the golfhouse at the Hudson River State Hospital on May 12. His topic was, "Blood and Plasma Bank in Smaller Medical Centers." A film on blood plasma was another feature of the program. Blood donors in Kingston have rallied in large numbers to meet the needs for reserve supplies of both whole blood and blood plasma, it was said. Blood banks developed in Kingston were reported to be sufficient to supply the needs of Ulster County.

Essex County

The Essex County Medical Society held its semiannual meeting at the Deer's Head Inn in Elizabethtown on Tuesday, June 1. The speaker was Dr. James Lade, of Albany, director of the Division of Syphilis Control, whose subject was "The Newer Methods of Treatment of Syphilis."*

Franklin County

Dr. Fred H. C. Heise, medical director of Trudeau Sanatorium, was named president-elect of the National Tuberculosis Association, which held its annual meeting in St. Louis, Missouri, in May.

Dr. Heise will assume his duties as president of the association next year.*

Fulton County

Dr. J. Edward Grant, of Northville, was reelected president of the Fulton County Tuberculosis and Public Health Association at the annual meeting held on May 26. Dr. William Siegal, director of the Department of Tuberculosis of the New York State Department of Health, was guest speaker. Dr. Grant presided at the luncheon session which was attended by 40 representatives of various local and state health agencies.*

Genesee County

Transferred from Portland, Oregon, to the Veterans' Facility in Batavia, Dr. Morris Dressler has arrived to assume his duties as a medical officer on the staff of the hospital. Dr. Dressler is replacing Dr. Abraham Falk, who enlisted in the Army.*

Herkimer County

The June meeting of the county society was held at 4:00 P.M. on June 8 at the Herkimer County Historical Building. Dr. V. M. Parkinson, superintendent of Pine Crest Sanatorium, presented several case reports on diseases of the chest.*

Jefferson County

The regular monthly meeting of the county society took place on Thursday, June 17, at the Jefferson County Golf Club. The speaker was Dr. Floyd Winslow, of Rochester, former president of the New York State Medical Society.*

Monroe County

Five physicians were honored by the Rochester Academy of Medicine at its annual meeting in May.

The following awards were made: The Albert David Kaiser Medal to Dr. Arthur M. Johnson, city health officer; the Dr. John W. MacCauley prize to Dr. Arthur R. Hartwig, of Genesee Hospital; the Taylor Instrument Company's prize jointly to Dr. Robert L. Sewell, of Strong Memorial Hospital and Dr. Andrew Kerr Jr., of General Hospital, and the Paine Drug Company's award to Dr. Gerard del Junco.

At the meeting winning papers were read and two plaques unveiled and presented to the Academy. The first, given by Dr. George H. Gage and Dr. Arthur P. Reed, bears the name of every doctor in Monroe County who served in World War I; the second, presented by Dr. Clarence P. Thomas, lists Monroe County physicians serving in the present conflict.*

New York County

On June 8, Dr. Hiram N. Vineberg, consulting gynecologist to the Mount Sinai Hospital, was presented with a testimonial volume of original scientific writings, honoring his sixty-five years of service in medicine, in a ceremony at the hospital's Blumenthal Auditorium. Speakers at the presentation ceremony included Hon. Leo Arnstein, Dr. Bernard Sachs, Dr. George Gray Ward, Margaret Sanger, Hon. Douglas S. Cole, Arthur Hays Sulzberger, Dr. Harold Neuhof, and Dr. Isidor C. Rubin.

• • •

The newly elected officers of the New York Roentgen Society are as follows: President, Dr. Ross Golden; vice-president, Dr. Maurice M. Pomeranz; secretary, Dr. Haig H. Kasabach; treasurer, Dr. William H. Boone; member, Executive Committee, Dr. Roy D. Duckworth.

• • •

Dr. Philip R. Lehrman was named chairman of the Section on Psychoanalysis of American Psychiatric Association for 1943–1944 at the meeting of that organization held in Chicago in May.

• • •

The New York Medical Society for Psychodrama and Group Therapy, at the Psychodramatic Insti-

[Continued on page 1268]

* Asterisk indicates that item is from local newspaper.

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[Continued from page 1266]

tute, 101 Park Avenue, New York, has elected the following officers: J. L. Moreno, M.D., president, and Frederic Feichtinger, M.D., secretary.

• • •

A group of physicians and medical organizations gave a dinner at the Biltmore Hotel on May 19 for Dr. J. Stanley Kenney, president of the Medical Society of the County of New York. The speakers included Dr. Thomas A. McGoldrick, president of the Medical Society of the State of New York; Dr. Nathan Van Etten, past-president of the American Medical Association; Dr. Edward M. Bernecker, Commissioner of Hospitals; Dr. Ernest L. Stebbins, Commissioner of Health; former Mayor Joseph V. McKee, and Dr. Alexander Nicoll. Dr. John J. McGowan, medical director of Fordham Hospital, was toastmaster.*

• • •

The monthly meeting of the county society was held Monday, May 24, at 8:15 P.M. at the New York Academy of Medicine. The following program was presented: "The Soldier's Heart," by Dr. Samuel A. Levine, assistant professor of medicine, Harvard University (by invitation), with discussion by Dr. Bernard S. Oppenheimer; and "Coronary Heart Disease: Angina Pectoris; Coronary Insufficiency; Coronary Occlusion" (illustrated by lantern slides) by Comdr. Arthur M. Master, M.C., USNR, consulting cardiologist, National Naval Medical Center, Bethesda, Maryland. The scientific program closed with general discussion.

• • •

At a meeting held in connection with the Annual Meeting of the State Medical Society in Buffalo, members of the New York State Chapters of the American College of Chest Physicians elected the following officers: president, Dr. Arthur Q. Penta, Schenectady; vice-president, Dr. James H. Donnelly, Buffalo; and secretary-treasurer, Dr. Lyman I. Thayer, Glens Falls.

Dr. Nelson W. Strohm, of Buffalo, is Governor of the College for New York State, and Dr. E. P. Eglee, of New York City, is the Regent for the district.

Rensselaer County

Members and guests of the Rensselaer County Medical Society heard Dr. Gilbert H. Horrax, neurosurgeon of the Lahey Clinic in Boston, speak on "Brain Tumors" at the May meeting of the society. He was introduced by Dr. John J. Rainey, chairman of the meeting.*

St. Lawrence County

Dr. R. J. Reynolds, secretary of St. Lawrence County Medical Society, has announced that meetings of the organization will be suspended for the duration of the gas ban.*

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Frank R. Boyd	63	Univ. & Bell.	May 17	Manhattan
George M. Brandt	62	Michigan	June 5	Seneca Falls
Garrison L. Brown	88	Syracuse	May 27	Euclid
Patrick J. Donahoe	63	Albany	May 4	Utica
Harry Eckstein	37	Maryland	March 21	Pleasant Plains
James Ewing	76	P. & S., N.Y.	May 16	Manhattan
Charles M. Gilmore	47	P. & S., N.Y.	May 15	Beacon
John M. Hall	62	Cornell	June 7	Manhattan
Frederick C. Heckel	78	Univ. & Bell.	June 7	Larchmont
Francis V. Hoehn	64	Buffalo	June 1	Buffalo
George H. V. Hunter	63	Queens, Canada	May 21	Brooklyn
Samuel A. Jahss	51	L.I.C. Hosp.	May 31	Manhattan
Harry Koster	50	L.I.C. Hosp.	June 2	Brooklyn
Arthur J. Leader	35	Syracuse	May 31	Poughkeepsie
Philipp Manecke	79	N.Y. Univ.	June 8	Brooklyn
Max D. Mayer	50	P. & S., N.Y.	May 28	Manhattan
William S. Overton	78	L.I.C. Hosp.	May 17	Binghamton
Eleanor Parry	82	W.M.C.N.Y. Inf.	May 22	Huntington
James Pullman	68	Yale	May 28	Brooklyn
Julius A. E. Sass	37	L.I.C. Hosp.	May 31	Brooklyn
Julius Selzer	46	McGill	May 22	Troy
Alexander Spingarn	65	P. & S., N.Y.	May 23	Brooklyn
Ellsworth M. Tench	59	Buffalo	June 1	Buffalo
William D. Towsley	87	N.Y. Univ.	June 9	Syracuse
Frederick T. van Beuren, Jr.	67	P. & S., N.Y.	March 13	Manhattan
Allison M. Van Horn	61	Ecl., Cincinnati	June 6	Sea Breeze
Alan P. Vaughan	73	Buffalo	May 31	Arcade
Edward H. Wells	76	Bellevue	May 18	Manhattan
Archibald A. White	48	Fordham	February 26	Bronx
Isidore S. Zimmerman	41	L.I.C. Hosp.	April –	Brooklyn

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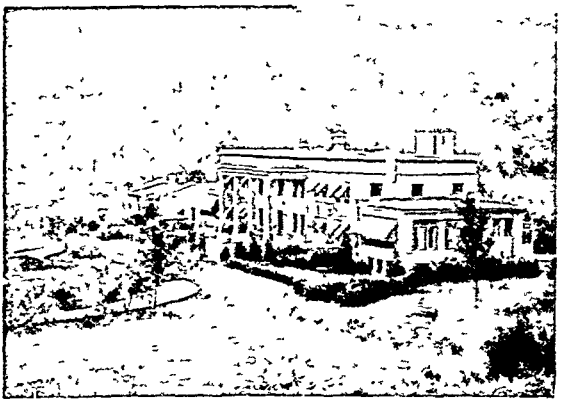
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"A peanut gives enough energy for two hours of mental work.

"Muscles tire even if one is resting or sleeping in a noisy place, and make one get up tired.

"A person may worry himself tired, but the nerves do not know it—they keep on working. Nervous fatigue may be just plain self-pity.

"Coffee will help that tired feeling.

"Morning tiredness is rarely due to genuine fatigue. It is more likely due to the fact that one dislikes one's job and is reluctant to go to work.

"Women's blood has fewer red cells to carry fatigue-offsetting oxygen.

"Some people are born tired. A person who has a small trunk, soft flesh, and sloping shoulders has the asthenic, or quickly tired constitution.

"An oxygen debt, or lack, is a very real cause of fatigue in arms, legs.

"Tests have shown that people who do strenuous or monotonous work tire less when they eat five smallish meals a day.

"There is no wrong side for sleeping.

"About every tenth person is more tired than he should be because he should wear glasses.

"It is more restful if one stretches one's legs out, rather than cross them."—*Dr. Donald A. Laird, Saturday Home Magazine*

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Hospital News

OCD Gives Rules for Hospital Units

ONE hundred ninety-one hospitals and medical schools have been invited by the Surgeon General of the U.S. Public Health Service to organize affiliated hospital units of the Emergency Medical Service to the U.S. Office of Civilian Defense. The invitation was extended to so large a number of civilian hospitals because each unit will be called upon for service only in a war emergency affecting its own region. Units will be activated only in event of a grave military disaster affecting the civilian population or military personnel in the area in which the parent hospital is located. Activation of a unit will take place only upon recommendation of the State Chief of Emergency Medical Service and the Office of Civilian Defense Regional Medical Officer, subject to certain limitations imposed by the Surgeon General and the Chief Medical Officer of the Office of Civilian Defense and by agreements with the invited hospitals.

Because these limitations may not as yet be understood by all physicians and hospitals which have been invited to participate in the Emergency Medical Service, the rules governing activation of affiliated units are set down as follows:

1. Members of the staffs of affiliated units are commissioned in the inactive reserve of the U.S. Public Health Service, generally with the rank of Passed Assistant Surgeon, Surgeon, or Senior Surgeon (equivalent, respectively, to Army ranks of Captain, Major, or Lieutenant Colonel). They will remain on inactive status for the duration of the war unless urgent need for their services should arise in their region because of an air raid or other grave wartime disaster. When activated under such circumstances, these officers will receive the pay and allowances of officers of equivalent grades in the armed forces.

2. The two specific purposes for which a unit may be activated are:

(a) For duty in an Emergency Base Hospital to which civilian casualties and other hospitalized patients must be transferred because a community is under enemy attack and one or more of its hospitals must be evacuated.

(b) For temporary duty to assist the armed forces at the time of an extraordinary military emergency which may temporarily overtax local military hospital facilities. Such temporary assistance will be provided in or near the locality in which an affiliated unit has been organized. The period of emergency assistance is expected to be of short duration and will last only until the Surgeon General of the Army can send in additional medical officers or until he can distribute the excessive load of sick and wounded to military hospitals in other parts of the country. Affiliated units are organized primarily for civilian protection and are not to be used to staff military hospitals as they expand to meet increasing medical requirements of the Army.

3. Since affiliated units are organized by the Medical Division of the Office of Civilian Defense as part of the Emergency Medical Service of their states, they will be expected to provide aid only in their own or neighboring states. Their members will not be detached for duty in other parts of the country nor, in accordance with the terms of their recruitment, will they be activated for any other duty except those listed in paragraph 2 of this statement.

4. A unit organized from the staff of a teaching hospital of a medical school will not be called unless the hospital itself must be evacuated or unless there is no unit from a nonteaching hospital to meet the emergency need.

5. The period of obligation for service will cease at the termination of the present national emergency; the Surgeon General will accept resignations of members of units 6 months after cessation of hostilities.

6. A commission in the inactive reserve of the U.S. Public Health Service does not prevent a member of an affiliated unit from entering the armed forces; resignation will be accepted for this purpose.

7. Members of affiliated units may wear the authorized lapel buttons which indicate that they have enlisted for emergency service. They are not to wear the uniform until called to active service and need not purchase a uniform unless the possibility of active service is imminent. Uniforms will not be required for brief periods of active service.

Because it is essential for civilian protection, the organization of affiliated units has received approval of the Board of Trustees of the American Medical Association. For the same reason, the Directing Board of the Procurement and Assignment Service has authorized "essential" physicians to accept positions in affiliated units.

At the Helm

Dr. A. A. Savastano, of Haverstraw, has been appointed to the staff of the Hospital for Ruptured and Crippled in New York City. He is already a staff member of the Polyclinic Hospital in New York City and the Long Island College Hospital in Brooklyn.*

• • •

Mrs. Letta Button, of New Berlin, has been named to the board of visitors of the Binghamton State Hospital by Governor Thomas E. Dewey for a term of seven years.

Mrs. Button will succeed Leo R. Harrison, of Greene, whose term expired on December 31, 1942.

Governor Dewey also appointed Dr. J. Mott Crumb, of South Otselic, to the board of visitors to the Women's Relief Corps Home at Oxford. He will succeed Herbert N. Griffin, Oxford postmaster, whose term of office expired in February. Dr. Crumb's term of office also is for seven years.

Dr. Crumb has practiced medicine since 1903. He is a member of the associate staff at the Chenango Memorial Hospital.*

[Continued on page 1272]

* Asterisk indicates item is taken from local newspaper.

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Sea Vitamins

A new concentrated vitamin D-3 product made from sea mussels, mollusks and other spineless marine animals has been placed on the market in Sweden It is intended chiefly as a substitute for fish-liver oil and other now unobtainable vitamin products to fortify poultry and animal foods.

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[Continued from page 1270]

Dr. J. Wilson Poucher, president of the board of the Hudson River State Hospital in Poughkeepsie, was reappointed to the Board of Visitors today by Governor Thomas E. Dewey. Dr. Poucher has been a member of the hospital board since 1917.

Now in his eighty-fourth year, Dr. Poucher retired from active practice of medicine and surgery in 1928.*

• • •

Major Elizabeth L. Raynor, director of the American Women's Hospitals Reserve Corps, has announced the appointment of Lieutenant Alice M. Donohue, head of the North Shore division of the Corps. Lieutenant Donohue is former national president of the Veterans of Foreign Wars Auxiliary and has been executive secretary of the Corps for the past year.

Improvements

Prospects for an early opening of the much-needed and long-awaited Tuberculosis Pavilion of Riverside Hospital on North Brother Island appeared brighter with the announcement by the Bronx Board of Trade that it has been advised by the New York City Department of Public Works that needed equipment for the structure will soon be available.

The structure will provide approximately 150 additional beds in the borough for the care and treatment of tuberculosis victims, which represents about one-third of the 500 beds deemed necessary by the two Board committees to adequately care for tuberculosis patients in this area.

Late last year the Board of Estimate provided additional funds needed for the building by authorizing an issue of $120,000 in serial bonds and tax notes, and an additional $120,000 for furnishings and equipment.

The building has cost well over $1,000,000 to date. It is T-shaped, three stories high, with a basement and a penthouse on the roof. It will have accommodations for 152 patients and among the medical services available will be surgery, medicine, physiotherapy, eye, ear, nose, and throat surgery, dental operations, radiography, fluoroscopy, thoracic and pneumothorax operations.*

• • •

Additional hospital facilities for Harlem and appointment of colored persons to hospital staff positions were discussed at a recent conference between Dr. Edward Bernecker, Commissioner of Hospitals, and the city-wide Citizens' Committee on Harlem.

A tumor clinic and a mental hygiene clinic are being planned for Harlem Hospital, Dr. Bernecker told the committee.

Three colored doctors recently have been placed on the staffs of city institutions, a colored nurse has been promoted to supervisor, and two colored student nurses are listed for September appointments, the group was told.*

• • •

The New Rochelle League for Service has given a total of $15,000 to New Rochelle Hospital since the first of the year. This is the largest sum contributed by the League in a single year and tops last year's record donation by $1,000. The gift represents proceeds of the Xavier Cugat concert, the spring fashion show and moving picture, the Hospitality Corner, Thrift Shop, and "Bulletin."

It has been estimated that the League has donated a total of $100,604 to the hospital since 1930, $40,000 of this sum having been given in the past three years.*

Newsy Notes

Wearing the new khaki Army Nurse Corps uniform for the first time, Lieut. Col. Florence A. Blanchfield, acting superintendent, took oath as colonel and as superintendent in a brief ceremony in the office of the Army Surgeon General on June 1. Colonel Blanchfield, eighth superintendent of the 42-year-old corps, succeeds Colonel Julia O. Flikke, who has retired.*

• • •

Six Episcopal theological seminary students entered Bellevue Hospital on June 16 for a twelve weeks' course in behavior problems, under joint arrangement with the hospital and the New York Protestant Episcopal City Mission Society. The courses include lectures by hospital staff members and are directed in connection with the society's chaplaincy service.

The young men will go through the routine of being admitted as patients in order to understand hospitalization from the patients' point of view. They will don white coats with identifying purple arm bands as "theological interns" and take part in daily hospital routine also.

• • •

A Chinese Blood Bank was opened at 154 Nassau Street in New York City on June 7. It is under the auspices of the American Bureau for Medical Aid to China, whose president is Dr. Donald D. van Slyke. The blood donations will be converted into plasma and shipped to Chinese hospitals.

Dr. J. Heng Liu, medical adviser to the Chinese Division of the Lend-Lease Administration, was the first donor. Miss Betty Eng, a member of the bank staff, was the first to donate a pint of blood. Dr. John Scudder, creator of the blood bank here for Great Britain, said that the Chinese bank would accept blood from persons who had had malaria because a blood plasma sterilizer would be used.*

• • •

In its ninetieth annual report issued June 13, Mount Sinai Hospital said that although 558 of its physicians and other staff members were in the armed forces, the hospital was able to maintain its services to the community last year and treated 16,592 bed patients and 25,804 in its clinics.*

• • •

Harlem Hospital will have a new tumor clinic and mental hygiene clinic, according to an announcement by Hospitals Commissioner Edward M. Bernecker on May 25. The mental hygiene clinic will be in the new outpatient building scheduled for completion within three months.

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A new concentrated vitamin D-3 product made from sea mussels, mollusks and other spineless marine animals has been placed on the market in Sweden. It is intended chiefly as a substitute for fish-liver oil and other now unobtainable vitamin products to fortify poultry and animal foods.

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Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N.Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

RECEIVED

Aftereffects of Brain Injuries in War: Their Evaluation and Treatment. By Kurt Goldstein, M.D. Octavo of 244 pages. New York, Grune & Stratton, 1942. Cloth, $4.00.

Virus Diseases. By Members of the Rockefeller Institute for Medical Research. Octavo of 170 pages, illustrated. Ithaca, N.Y., Cornell University Press, 1943. $2.00.

Hope Deferred. By Jeanette Seletz. Octavo of 536 pages. New York, Macmillan Co., 1943. Cloth, $2.75.

An Introduction to Group Therapy. By S. R. Slavson. Octavo of 352 pages. New York, Commonwealth Fund, 1943. Cloth, $2.00.

Victories of Army Medicine: Scientific Accomplishments of the Medical Department of the United States Army. By Edgar Erskine Hume, Col., M.C., U.S.A. Octavo of 250 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $3.00.

Discovering Ourselves: A View of the Human Mind and How It Works. By Edward A. Strecker, M.D., and Kenneth E. Appel, M.D., in collaboration with John W. Appel, M.D. Second edition. Octavo of 434 pages. New York, Macmillan Co., 1943. Cloth, $3.00.

Selection of Officer Candidates. By William L. Woods, M.D., Lucien Brouha, M.D., and Carl C. Seltzer. Octavo of 46 pages, illustrated. Cambridge, Harvard University Press, 1943.

Tumores y Hormonas. By Jacinto Moreno. Quarto of 129 pages, illustrated. Buenos Aires, A. Guidi Buffarini, 1942.

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. Editors: H. Letheby Tidy, M.D., and A. Rendle Short, M.D. Sixtieth Year, 1942. Octavo of 396 pages, illustrated. Baltimore, Williams & Wilkins Co., 1942. Cloth, $6.00.

Convulsive Seizures. By Tracy J. Putnam, M.D. Duodecimo of 168 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $2.00.

Laugh at the Lawyer Who Cross-Examines You. By Charles L. Cusumano, LL.B. Duodecimo of 375 pages. New York, Old Faithful Publishing Company, 1942.

REVIEWED

Textbook of Clinical Neurology. By Israel S. Wechsler, M.D. Fifth edition. Octavo of 840 pages, illustrated. Philadelphia, W. B. Saunders Company, 1943. Cloth, $7.50.

This is a revision of an outstanding and deservedly popular book. It has been enriched by the inclusion of the results of the advances made and the increase in knowledge during the past four years. The chemotherapy of meningitis is concisely and effectively presented. The various types of headache are thoroughly covered and indexed, including the diagnosis and treatment of the histamine variety.

The basic value of the book lies in the author's digest of his years of clinical experience and teaching in neurology. Although 40 pages are devoted to an introduction to the history of neurology, few will find any cause for complaint in view of the very interesting and critically evaluated contents.

The book is well printed, easy to read, and continues to be an authoritative guide.

LAURENT FEINIER

Adventure in Blood Transfusion. By Bertram M. Bernheim, M.D. Octavo of 182 pages, illustrated. New York, Smith & Durrell, Inc., 1942. Cloth, $2.50.

This fascinating presentation should be read by physician and layman alike. It is written by a man who has made history in the field of blood transfusion. It takes us back to way back, when the procedure was in truth an adventure; where each transfusion took more out of the transfusionist in the way of coronary metabolism than it actually gave to the patient in measured cubic centimeters and its implications.

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It shows the technique of all types of extraperitoneal caesarean with clear descriptions, beautifully illustrated. By James V. Ricci, M.D., and James P. Marr, M.D. 47 Illus. 224 Pages $4.50 (1942)

BOURNE and WILLIAMS—Recent Advances in Obstetrics and Gynaecology, 5th Ed.
Much new material is included in the sections on treatment and on technical methods in this new edition. By A. W. Bourne, M.D., and L. H. Williams, M.D., London. 72 Illus. 363 Pages $5.50 (1942)

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[1]New and Nonofficial Remedies. American Medical Association, Chicago, Illinois, 1942; p. 20.
[2]Shelmire, B. J. Invest. Dermat. 4: 337 (Oct.) 1941.
[3]Blank, J. M., and Coca, A. F.: J. Allergy 7: 552 (Sept.) 1936



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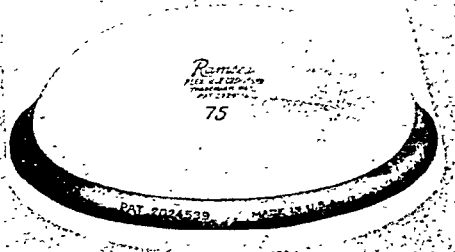
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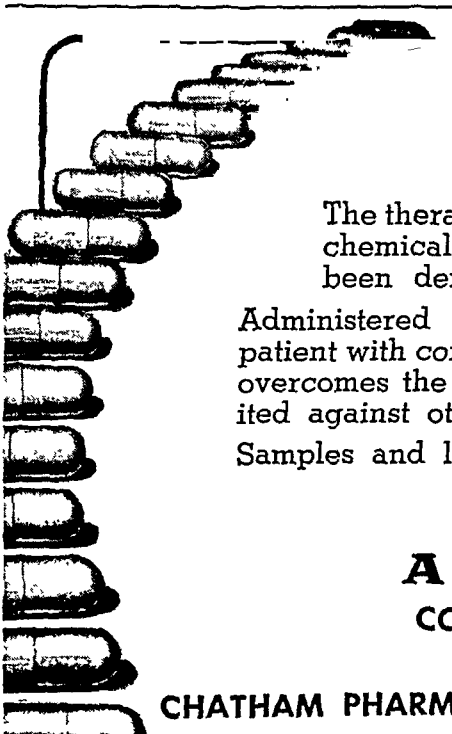
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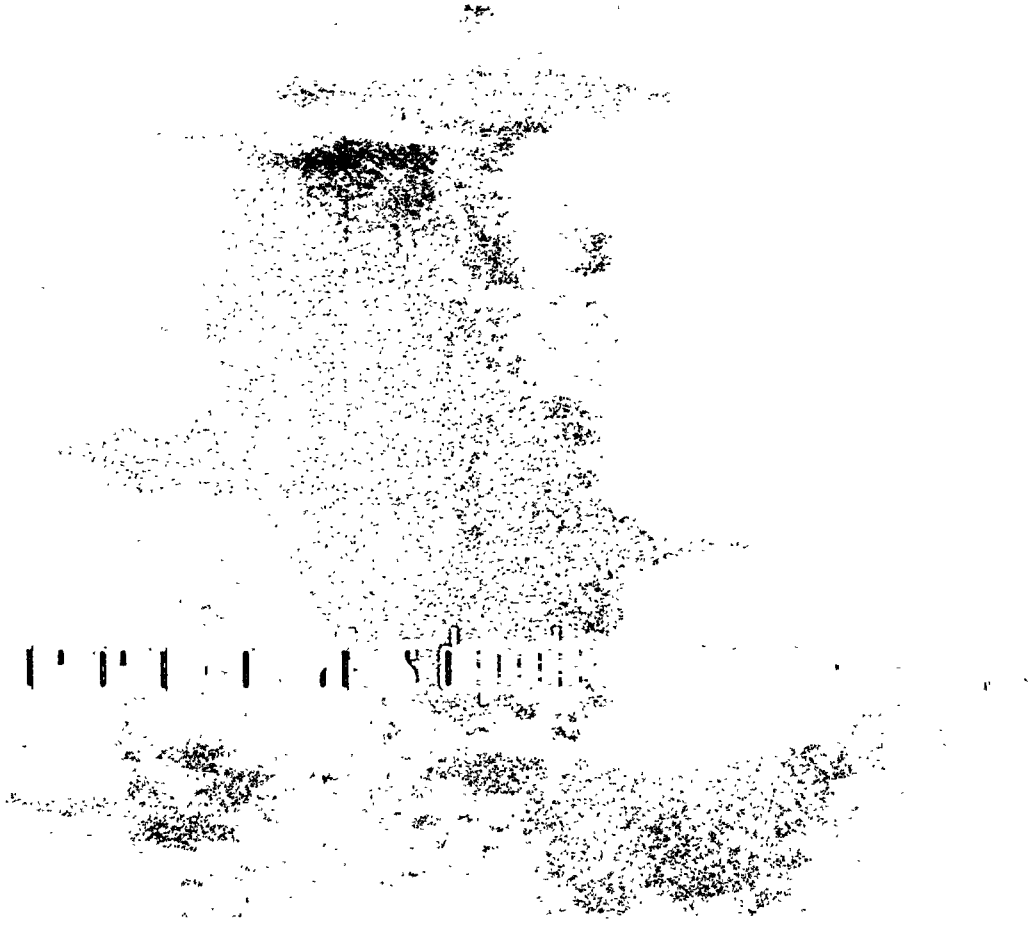
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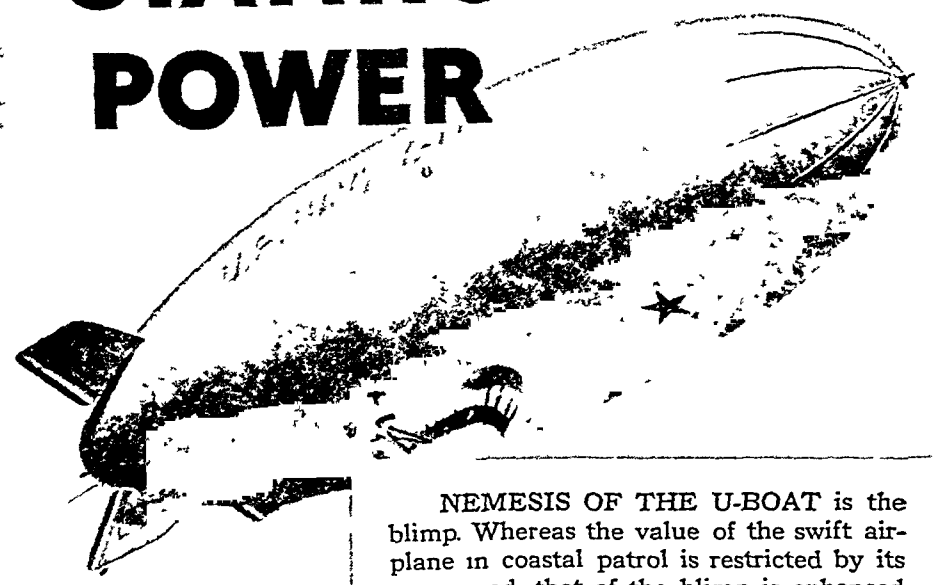
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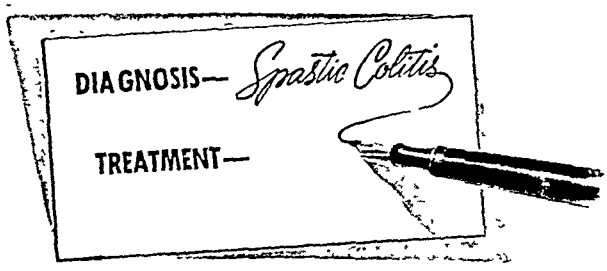
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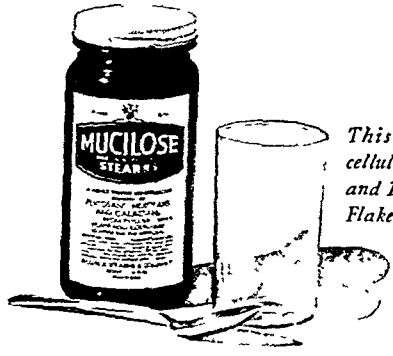
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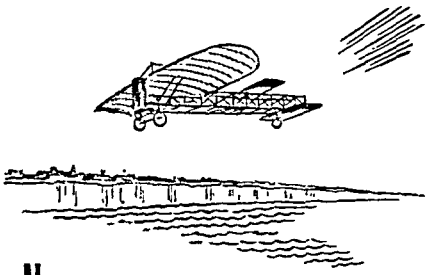
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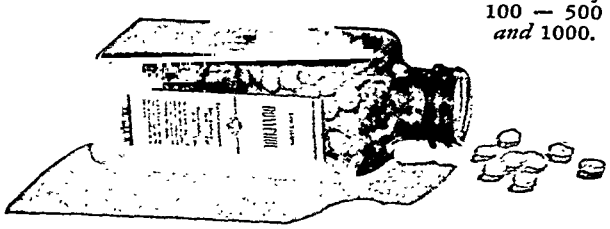
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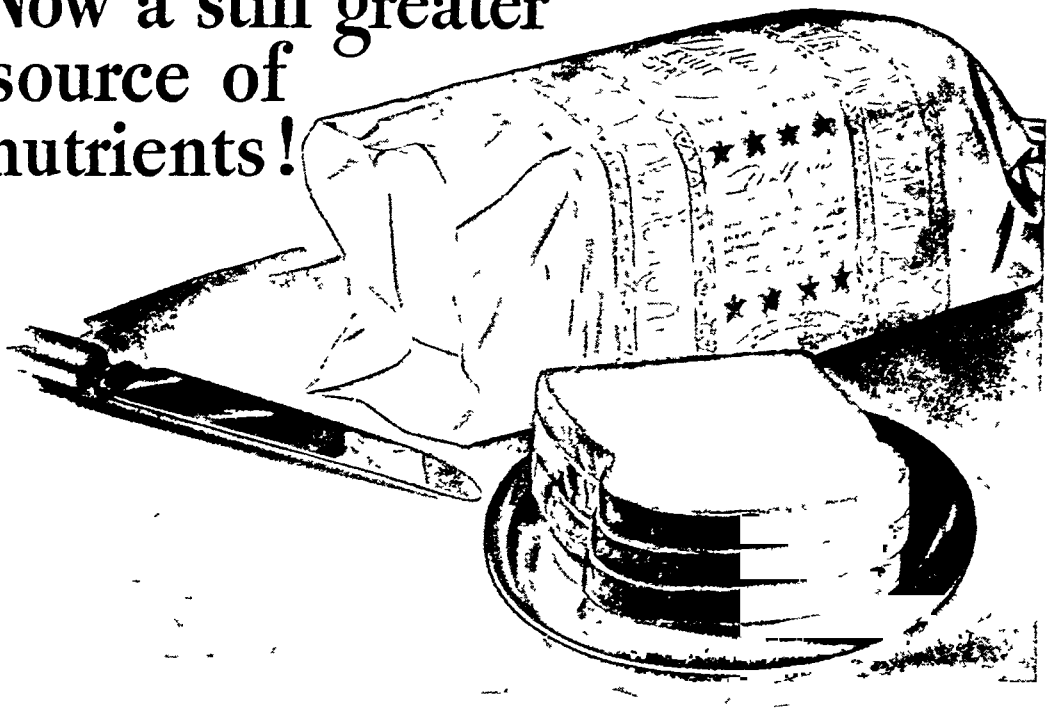
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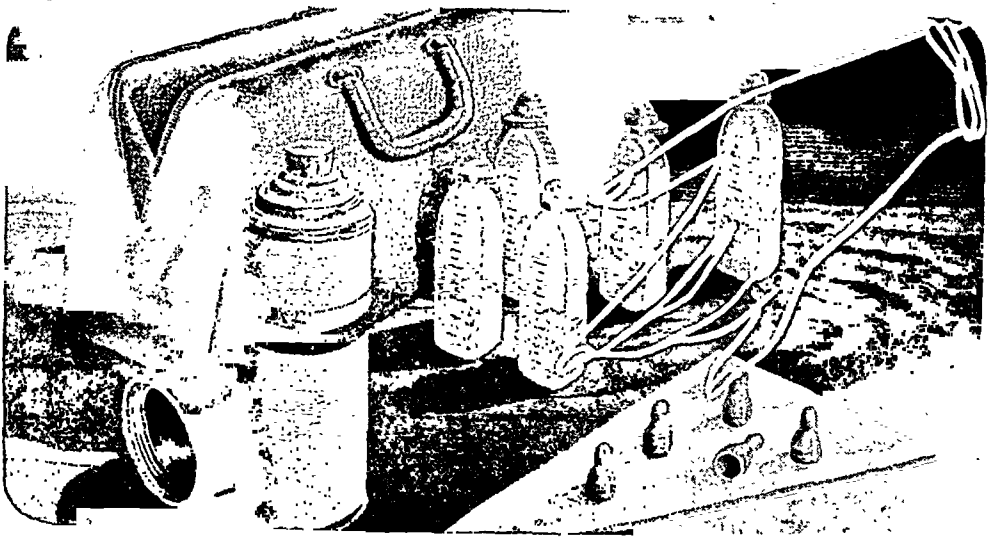
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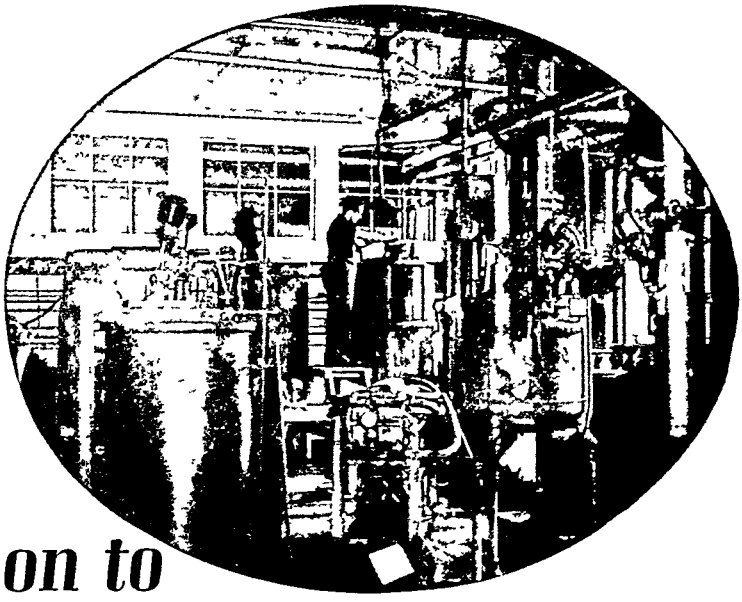
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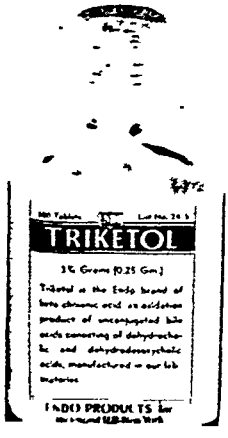


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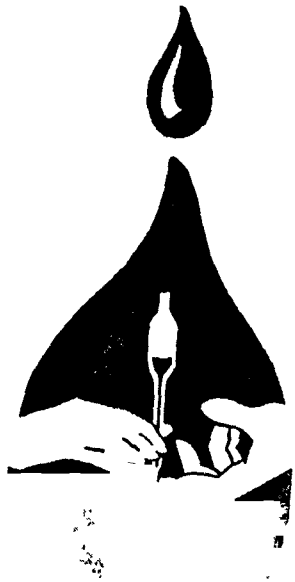
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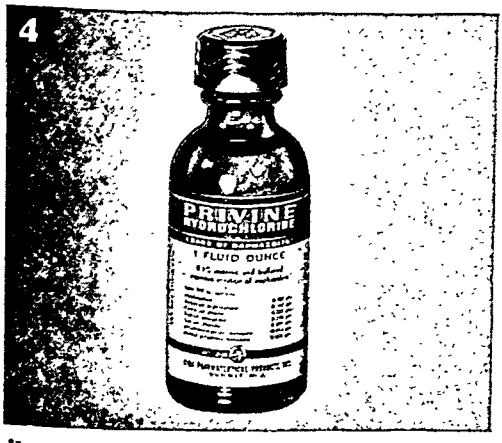
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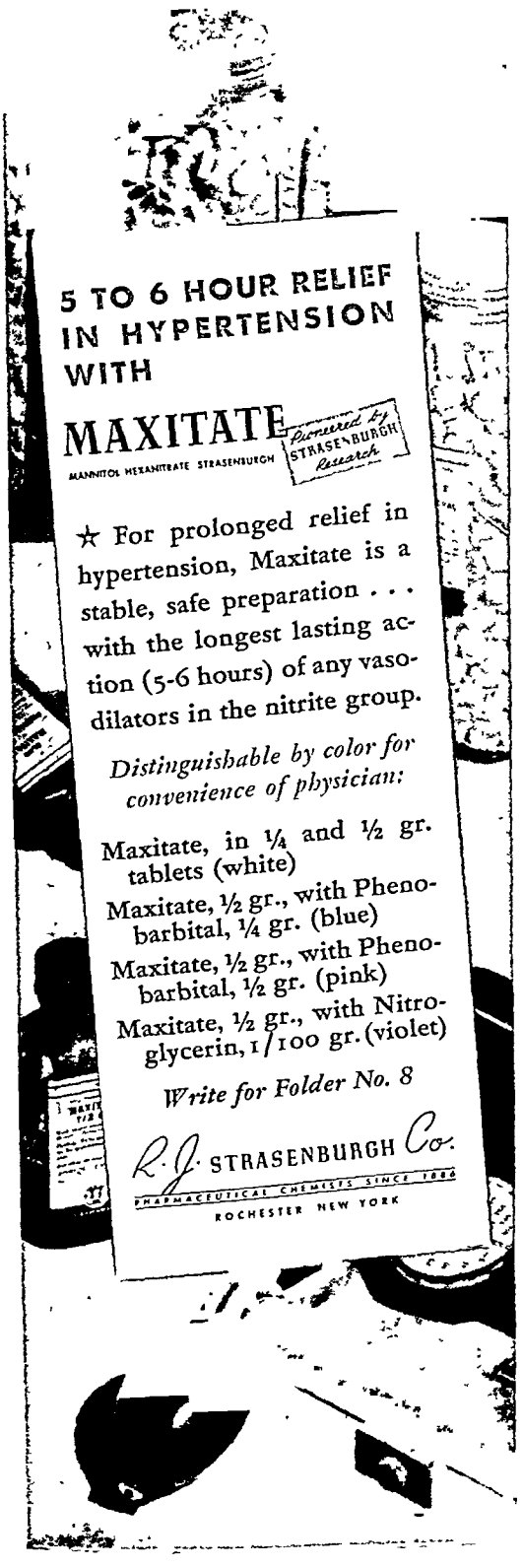
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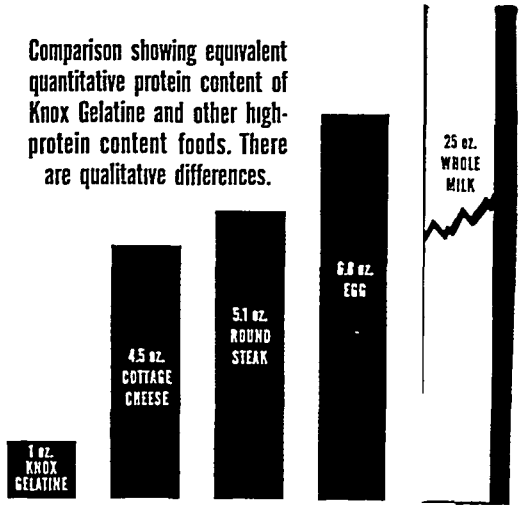
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VOLUME 43 JULY 15, 1943 NUMBER 14

Editorial

The Practical Nurse

At its annual session in 1943, the House of Delegates of the Medical Society of the State of New York recognized the seriousness of the shortage of nursing service in the State. It adopted a resolution endorsing "the movement to extend the facilities for training . . . . practical nurses and likewise commend(ing) the efforts by the Nursing Council of this State in the procurement of candidates for such training."[1]

There has long existed in the State an evident need for another type of nursing service of a less demanding character than that hitherto supplied by the highly trained professional registered nurse group. This need has been intensified during the present emergency by the lack of available nurses for maintenance of civilian hospital requirements. Somehow, these requirements will have to be met. The obvious answer seems to be extension of the present inadequate facilities for the procurement and training for this special practical nurse group.

There are at present nine schools for the training of practical nurses in the State—six in New York City, two in Albany, and one in Rochester. Students of practical nursing are not, however, trained in hospitals of the State which have established training schools for professional nursing. In addition to those trained in the nine schools, there are, according to information supplied by the Executive Secretary of the Recruitment Committee of "Practical Nurses of New York, Inc.," some 26,000 persons in the State working as practical nurses under waiver.

Formal courses in the approved schools are from nine months to a year in length, of which time 300 to 500 class hours are devoted to the regular curriculum. Instructors are registered nurses able to teach at the level between that of the volunteer worker and that of the professional nursing student. Laboratory facilities for teaching bedside nursing and home economics are provided.

Hospital affiliation provides supervised instruction and experience in the care of convalescent medical patients and also in the skills necessary for the competent care of the chronically ill patient. The practical nurse, therefore, fills the gap between the professional nurse and the volunteer worker and, when properly trained, will have received a substantial body of information in nonscientific terms on a suitable vocational level.

The movement which the House of Delegates has endorsed to extend the facilities for practical nurse training seeks to provide a larger body of prepared nurses that can be certified as competent to perform certain nursing duties in the hospital and in the home. Women from 18 to 50 can be recruited from among those having two years of high school education, from those who for one reason or another desire to leave domestic or factory work and who desire to become nurses but who cannot qualify, by reason of age or on educational or other grounds, for the longer training as registered nurses.

[1] New York State J. Med. 43: 1162 (June 15) 1943.

Extended facilities for recruiting and training such a group would unquestionably assist in reducing the cost of sickness, and aid materially in the care of the chronically ill in their homes or in convalescent homes, thereby relieving the pressures for hospital care and releasing badly needed beds. It is evident that the Nursing Council of this State and all other agencies working toward this end deserve and must get every assistance in carrying out its procurement and training program.

Industrial Health

"There are," says Leverett Bristol, M.D.,[1] chairman of the Committee on Education, Council on Industrial Health of the American Medical Association, "approximately fifty million wage earners in the United States. Among these workers it has been found that over four hundred million days are lost yearly on account of absenteeism due to sickness, with a resulting yearly cost of over three billion dollars. We must do everything possible to save this time lost from sickness as a part of our contribution to winning the war. Neither metal nor rubber, money nor manpower, but time shows the greatest shortage! Our present needs require a strengthening and broadening of the entire industrial health program all along the line, from private industry to local, state, and federal jurisdictions. As emphasized by Surgeon General Parran of the United States Public Health Service, "industrial hygiene must keep pace with the needs arising from high speed assembly lines, which will employ some fifteen million men and women within the year. Great Britain learned that it is urgently necessary to have the full-time services of a trained industrial physician in every large plant. Less than one-seventh of our workers have that service now."

Industry has been making more and more use of medical knowledge and service in recent years. Larger companies have expanded their employee health programs. Smaller companies should develop health supervision and medical services for employees, particularly those engaged in war production. Some are, in fact, doing so.[2] Plants having 500 or fewer employees comprised 60 per cent of the total of factory employment as late as 1937, and 98 per cent of the total number of manufacturing establishments of the country.[3]

These small plants must be encouraged to develop employee health programs and medical service. It is surely a function of county medical societies to promote this type of industrial service. Primarily, in conjunction with departments of health, and also with the aid and assistance of voluntary agencies. "One of the outstanding examples of postgraduate education in industrial health .... was carried out last year through brief regional institutes in nine Iowa communities, based on cooperative efforts between the state and county medical societies and the state department of health..... The purpose (of these) was to stimulate and correlate the interests in industrial medicine of general practitioners, industrial physicians, and industrial managers."[1]

Assuming that responsibility for the stimulation and teaching of the physicians who are available for this work in the county rests in the county medical society, what sort of postgraduate course should be undertaken? Bristol[1] recommends: (1) employee relations, (2) managerial relations, (3) medical relations, and (4) public health relations. Specific subjects which should be included are: common industrial health problems, including dust hazards, industrial dermatitis, and other industrial diseases of local bearing or interest; tuberculosis control; syphilis, and other nonoccupational diseases; emergency care of minor and major industrial injuries; industrial hygiene surveys with demonstrations of methods and apparatus; medicolegal aspects of

[1] J.A.M.A. 119: 1069 (Aug. 1) 1942.

[2] Industrial Health Practices (a report issued by the Committee on Healthful Working Conditions), National Association of Manufacturers (Oct.) 1941.

[3] New York State J. Med. 42: 1719 (Sept. 15) 1942.

industrial health; and industrial health and the general practitioner (methods and procedures of administrations and physical examinations).

If this has been accomplished successfully elsewhere, it can be done here. Unless we create a well-informed and trained reservoir of personnel to implement the expanding programs of industry, we shall not have fulfilled our obligation completely to the war effort.

The success attained by the Long Island College of Medicine in its recent postgraduate course in industrial medicine, the educational program maintained for practitioners in Indiana, and the continuing lectures and other activities of the Council Committee on Public Health and Education have demonstrated what can be done with respect to a training program for physicians.

The more difficult task still remains of bringing this medical service into plants that have 500 or fewer employees. Undoubtedly the county medical societies can do and are doing a great deal to provide the professional service necessary, but it remains true that the great bulk of the small plants belong to no trade association, have no organization through which an educational campaign can be conducted looking to an acceptance by management of such medical services as are available in the locality on a whole or a part-time basis. The strengthening and broadening of the entire industrial health program advocated by Dr. Bristol will depend to some extent on what industry will do to set up an educational program to reach the management of the small plants. Medicine can rightly be expected to furnish competent industrial medical service and is making every effort to do so, but we are not aware of any considerable attempt on the part of industry to educate the management of the small plant to an acceptance of such medical services as are available and which organized medicine is seeking to extend by every possible means. It seems hardly within the province of medicine to undertake that job. Until industry and industrial associations undertake to stimulate interest in medical service on the part of the small plants, absenteeism and indifferent industrial health conditions will continue to prevail.

Dissolving Urinary Calculi

Dissolution of urinary calculi has long been a mirage-like therapeutic problem. Various agents, given for the purpose of altering the urine chemically in order to dissolve calculi, have yielded no beneficial results. Optimism increased when it was demonstrated that a highly acid ash diet would produce strongly acid urine, perhaps with the aid of goodly doses of ammonium chloride.

The suggestion was made that if the acidity of the urine were sufficiently great, inorganic calculi could not fail to go into solution. Such therapy in conjunction with liberal doses of vitamin A, absence of which makes an animal prone to calculus formation, raised hopes that renal calculi, if of inorganic composition, could be removed medically.[1] Calculi of organic composition, were treated with a different dietary regimen. Further studies and investigations dampened hopes for the treatment though, and all that may now be claimed for such therapy, with exceptions, is that reformation of calculi is either prevented or retarded.

A new approach to the same problem promises more definite, if limited, results. A recent revelation demonstrates that the addition of magnesium ions to a citrate solution dissolves phosphatic urinary calculi without undue irritation of the mucosa of the urinary tract.[2] Monohydrated citric acid, anhydrous magnesium oxide, and anhydrous sodium carbonate in definite proportions are dissolved in a liter of water. This solution is then injected by a retrograde cystoscopic method following a carefully devised technic so that the calculus is bathed in this solution, which has the capacity of dissolving phosphate calculi.[2] Certain preliminary precautions must be observed, notably establishment of the fact that the treated calculus is of the soluble phosphate variety. Sulfathiazole is concurrently administered to prevent or combat infection.

This new method has withstood the test of trial, brief though this trial has been. It is based upon sound chemical knowledge of calcium phosphate solubility. The solution is injected into direct and relatively prolonged contact with the

TABLE 1.—FLUID THERAPY OF BURNED PATIENTS

Patient	12-Hr Intervals	Whole Plasma Injected (cc.)	Saline Injected (cc.)	Adrenal Cortical Extract (cc.)
G. S.	1st	1,700	3,100	6
	2nd	500	3,500	4
	3rd	600	925	5
	4th	1,000		5
	5th	850		
	After 60 hrs	1,150		
Total		5,800	7,525	
V. D.	1st	1,200	600	
	2nd, 3rd, and 4th	2,400	1,200	
Total		3,600	1,800	
S. S.	1st	650	50	(dist. water)
	2nd	250	100	
	3rd	200		
	4th	300	50	(dist. water)
Total		1,400	200	

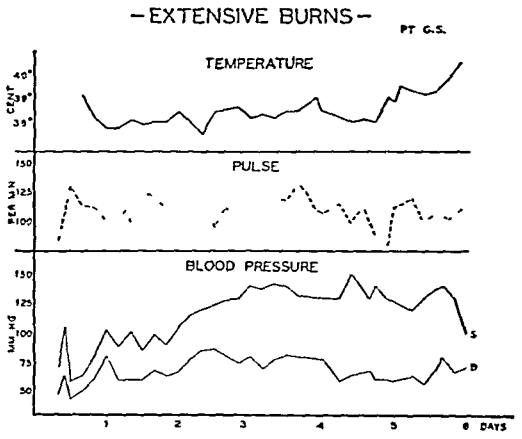


CHART 1

Wolff, and Lee[21] are more complicated, but depend on calculations derived from the hemoglobin level, hematocrit, plasma protein concentration, and body weight. These formulas are predicated on the basis that the greater part of the fluid loss occurs soon after the burn and are based on the hematocrit on admission. The burned patient may be seen before the hematocrit has increased markedly, but plasma therapy should be started at this time. Our experience indicates that it is possible to predict the concentration of plasma required at various periods of treatment, but the amount must be regulated by repeated determinations of the hematocrit and specific gravity or protein concentration of the plasma.

Case Reports

Case 1.—G. S. (R.M.H., No. 167072), admitted on December 7, 1941. The patient was a 33-year-old white man who had fallen asleep while smoking, igniting the bedclothes. The flames had been extinguished soon afterward, but on admission to the hospital he had extensive burns involving the entire trunk anteriorly and posteriorly, the buttocks, perineal region, the neck, both arms, and hands. The burns of the trunk and buttocks were almost entirely third degree except for one small area of second degree on the back. The burns on the hands were of second degree. On admission the patient was semicomatose, dyspneic, and exhibited signs of profound peripheral circulatory failure. The unburned areas were very pale and cool. Blood pressure on admission was 60/0; pulse, 120, thready and of poor quality. General physical examination aside from the burns was negative on admission. On admission the blood showed a hemoglobin of 23.5 Gm. The red blood count was 5.4 million. The white blood count was 11,750. Urine and Wassermann tests were negative.

Course in the hospital: Immediately following admission the patient's blood pressure became unobtainable; he was placed in shock position, with local heat applied to the body by means of blankets. Morphine was administered to relieve discomfort, and oxygen was given by nasal catheter. A cannula was inserted into an arm vein and intravenous plasma and saline injections were started. The amounts of plasma and saline administered are recorded in Table 1. Because of the patient's condition, which was critical, adequate débridement of the burned surfaces could not be done. After partial débridement of the wounds, the anterior burned surfaces were sprayed with tannic acid and silver nitrate. The patient could not be moved sufficiently to treat the burns of the back for about twenty-four hours, and at this time these areas were treated with sulfadiazine compresses. His condition remained very critical in spite of large amounts of saline and plasma. After thirty-six hours the blood pressure finally stabilized at 120/70, and remained within normal limits until the patient's death one month later. The temperature, pulse, and blood pressure during the first week are recorded in Chart 1. It should be emphasized that during this period his temperature did not exceed 38.5 C. No toxicity developed. The pulse was of good quality, urinary output remained normal, and jaundice did not develop. Because of limited treatment of the burns on admission, the burned areas became grossly infected and were treated with daily saline tubs. After the first week the temperature began spiking daily to 39 or 40 C. because of the infection. Granulations gradually developed over the burned area, and these were grafted with Reverdin grafts from the thighs. In spite of marked improvement in the condition of the burns, the patient developed septicemia on the twenty-sixth hospital day. Blood cultures at that time showed a heavy growth of Bacillus aerogenes, and the patient died in spite of supportive therapy.

This patient survived the initial period of very extensive burns only to succumb later to cachexia and infection. He received large amounts of sulfa-

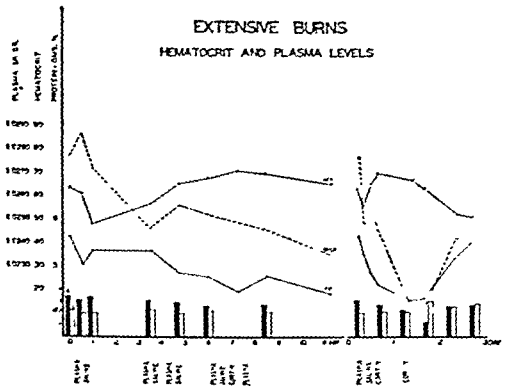


CHART 3

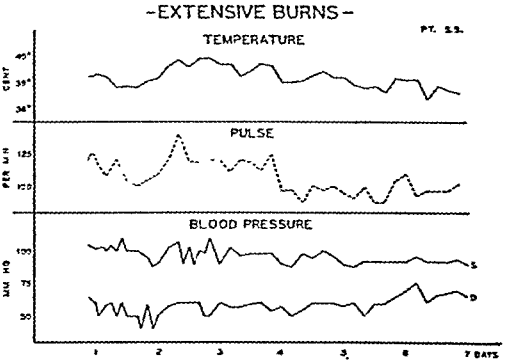


CHART 4

and was able to continue taking fluids and food by mouth. The blood pressure remained normal. The plasma specific gravity, the red cell hematocrit, and the blood protein levels are recorded in Chart 2. The urinary output remained normal, and toxic symptoms other than fever, on the third hospital day, did not develop. The temperature returned to normal on the fifth hospital day and remained so thereafter. In this instance eighteen hours were consumed before the burned areas had become dry with the sulfadiazine in triethanolamine therapy. There was extensive swelling of the soft tissue beneath the burned areas, but no peripheral edema developed. The subsequent course was uneventful. On the fourteenth hospital day the eschar was removed from the burned surfaces under general anesthesia, the third-degree areas were grafted with split-thickness grafts, and the second-degree areas were treated with vaseline gauze and compression dressings. The patient was discharged on April 16, 1942, with the burns essentially healed and no contractures.

The three case histories above are typical of the more seriously burned patients who are seen. All had sufficient surface area involvement to cause death unless they were treated rigorously, but all three patients survived the period of shock, and all had minimal evidence of toxemia. The first patient died at the end of a month from septicemia, but the other two survived. The amount of fluid therapy which they received is recorded in Table 1. The hematocrit, plasma specific gravity, and total protein concentration are recorded for Cases 1 and 3 (Charts 1 to 4). Case 2 could not be followed in detail because no veins were available for venipuncture.

Case 1 received 5,800 cc. of plasma in three days, plus 7,500 cc. of saline. The blood pressure in this patient did not become stabilized for thirty-six hours, and during this period it seemed impossible that circulatory stability would be restored. However, after thirty-six hours his condition became satisfactory, and he did not appear toxic until infection had become a prominent feature at the end of the first week. He did eventually die of infection, but not until one month after injury, at a time when the so-called period of toxemia was well past. His urinary output was above 1,500 cc. during the first two weeks, and jaundice did not develop. He did, however, receive far too much saline, for the plasma specific gravity and total protein concentration fell alarmingly by the second day (Chart 3). If more plasma had been available, so much saline would not have been given. His calculated circulating plasma volume was replaced approximately twice in forty-eight hours; yet more plasma should have been given to maintain the plasma specific gravity. It is possible that less total fluid would have been required if a greater proportion of it had been plasma.

Case 2 also received a large amount of plasma, but, again, possibly too much saline, as the plasma specific gravity was low on the second day, and periorbital and peripheral edema developed. Case 3 was more nearly ideally treated. She received an amount of plasma corresponding to the total estimated circulating plasma volume and only 200 cc. of saline and distilled water. The plasma specific gravity, total protein concentration, and hematocrit remained within normal limits. She was conscious at all times, took fluids by mouth after the first day, and had a normal urinary output in spite of moderate fever the first five days. The blood pressure remained normal throughout the débridement as well as afterward. It must be remembered that while she was severely burned, the involvement was less extensive than that of Cases 1 and 2.

Table 2 indicates the amount of plasma that these patients should have received according to the method of calculation of Harkins, Black, and Elkinton *et al.* These 3 cases actually required far more than the calculated amount of

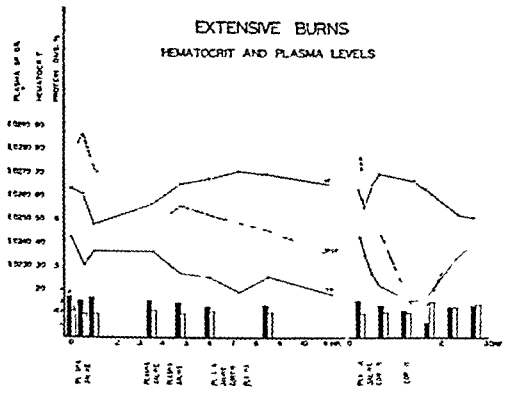


CHART 3

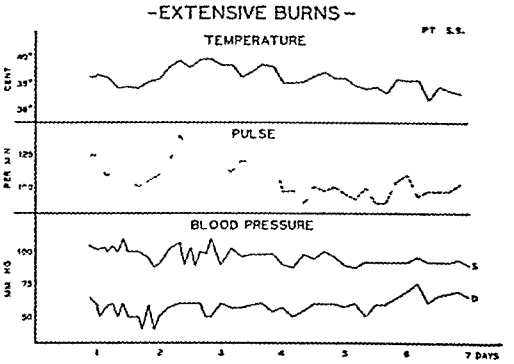


CHART 4

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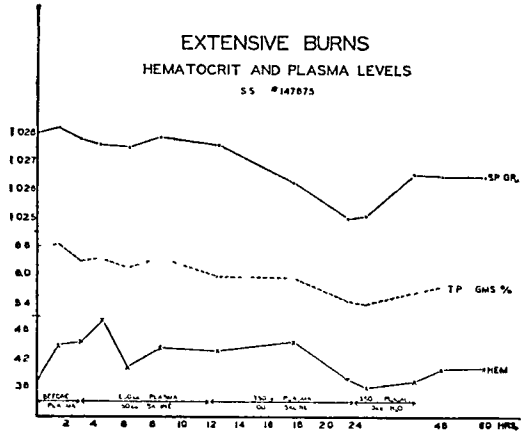


CHART 2

thiazole, was given repeated transfusions, and at one time received a continuous intravenous drip of 3½ per cent Amigen solution in 10 per cent glucose. Throughout his entire hospital stay his nonprotein nitrogen remained within normal limits. His blood plasma proteins were increased by plasma transfusions, and on December 31 were 6.6 Gm. per cent. These, however, gradually fell as he developed terminal cachexia and anorexia.

Case 2.—A. D. (R.M.H., No. 185292), admitted December 9, 1941, and discharged March 25, 1942. This patient was a 10-year-old girl whose clothes had been ignited from the kitchen stove shortly before admission. Her past history was noncontributory. On admission her temperature was 37.7 C., pulse 96, respirations 22, and blood pressure 110/68. The patient was a well-developed, well-nourished white girl. General physical examination was negative except for the burns. There were third-degree burns involving the entire chest, abdomen and thighs anteriorly and extending posteriorly on the left to involve half the posterior trunk. The burned area also involved the neck and face as well as both arms. By the method of Berkow, the burned area was estimated to involve at least 55 per cent of the body's surface. There was very marked edema of the tissue underlying the burned areas. The arms and thighs were increased to approximately twice their normal diameter. The patient was immediately given morphine, a leg vein was cannulated, and a transfusion of plasma and saline was begun. With the transfusion continuing, the burned areas were débrided in a tub. The patient was then placed on sterile sheets, dried, and the sulfadiazine in triethanolamine treatment (Pickrell) was started. During the débridement the patient's blood pressure remained within normal limits. She remained conscious and had very little pain. Two hours later the cannula in the vein plugged, and the blood pressure became unobtainable. Another vein was immediately cannulated, and with continuous transfusion of plasma, the blood pressure returned to normal. The amount of fluid that the patient received is tabulated in Table 1.

The blood pressure remained normal. On the third hospital day the temperature was elevated to 39 C., and the pulse was 120, but the patient continued to be alert, complaining of very little pain, and was able to take fluids and food without nausea. It required about twelve hours for the burned area to become adequately covered with the sulfadiazine eschar. The red blood count on the evening of admission was 5.33 million and the hemoglobin was 13.5 Gm. (after plasma and saline). On December 10, 1941, the red blood count was 5.25 million; hemoglobin, 13.5. On December 11, 1941, the red blood count was 4.2 million, and at this time the plasma was discontinued and the patient was given whole blood transfusions. After the third day the patient did not require further plasma transfusions, but she was given small blood transfusions at frequent intervals. Beginning on the sixth hospital day the patient received sulfadiazine by mouth, and the blood level varied between 5 and 7 mg. Her general condition remained good following this, and, although she lost weight, her appetite was fairly good. The burn over the trunk remained fairly clean, but that over the arms became infected. The eschar was removed thirteen days after admission, and the granulating areas were grafted daily with Reverdin grafts performed under local anesthesia. Because of the extensive surface area involved, it was impossible to obtain sufficient skin to use split-thickness grafts. The patient was discharged from the hospital on March 25, 1942. At the time of discharge there was a contracture of the neck, left axilla, and left groin which will require future plastic operations.

Case 3.—S. S. (R.M.H., No. 147675), admitted February 4, 1942, and discharged April 16, 1942. The patient was an 8-year-old girl who was admitted after extensive burns of the body from ignited clothing. The burn had been covered with butter and olive oil prior to admission, and a tannic acid compress had been applied by the ambulance attendant. Her past history was nonessential. On admission the temperature was 37.6 C., pulse 110, and blood pressure 106/64. The patient was alert, having very little pain. The general physical examination was negative except for the burned areas. There were second- and third-degree burns over the right side of the trunk and back, involving also the right thigh and the right arm. According to the method of Berkow, it was estimated that 35 per cent of the body's surface was burned. On admission, hemoglobin was 14.1 Gm. The white blood count was 21,700. Plasma specific gravity was 1.0280, and the red cell hematocrit was 39.1 per cent. The patient was immediately started on shock therapy although at this time blood pressure, hematocrit, and hemoglobin were normal. A continuous intravenous drip of whole plasma was started, morphine was given, and the burned areas were débrided in a tub. Then the patient was placed on sterile sheets and sulfadiazine in triethanolamine was applied to the burned areas. With continuous plasma therapy she remained conscious and cooperative

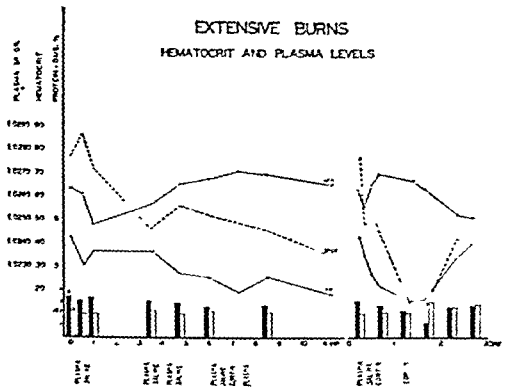


CHART 3

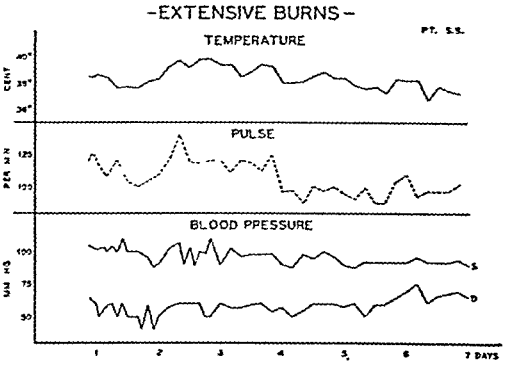


CHART 4

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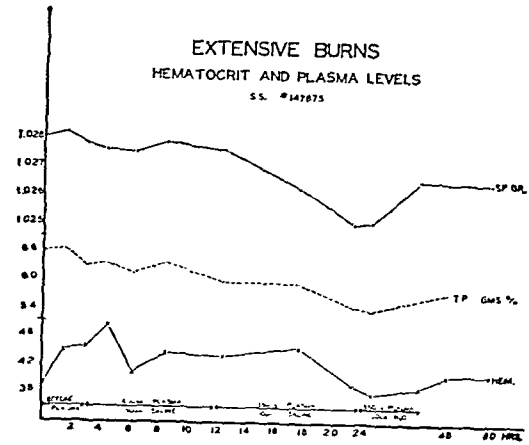


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Case 2.—A. D. (R.M.H., No. 185292), admitted December 9, 1941, and discharged March 25, 1942. This patient was a 10-year-old girl whose clothes had been ignited from the kitchen stove shortly before admission. Her past history was noncontributory. On admission her temperature was 37.7 C., pulse 96, respirations 22, and blood pressure 110/68. The patient was a well-developed, well-nourished white girl. General physical examination was negative except for the burns. There were third-degree burns involving the entire chest, abdomen and thighs anteriorly and extending posteriorly on the left to involve half the posterior trunk. The burned area also involved the neck and face as well as both arms. By the method of Berkow, the burned area was estimated to involve at least 55 per cent of the body's surface. There was very marked edema of the tissue underlying the burned areas. The arms and thighs were increased to approximately twice their normal diameter. The patient was immediately given morphine, a leg vein was cannulated, and a transfusion of plasma and saline was begun. With the transfusion continuing, the burned areas were débrided in a tub. The patient was then placed on sterile sheets, dried, and the sulfadiazine in triethanolamine treatment (Pickrell) was started. During the débridement the patient's blood pressure remained within normal limits. She remained conscious and had very little pain. Two hours later the cannula in the vein plugged, and the blood pressure became unobtainable. Another vein was immediately cannulated, and with continuous transfusion of plasma, the blood pressure returned to normal. The amount of fluid that the patient received is tabulated in Table 1.

The blood pressure remained normal. On the third hospital day the temperature was elevated to 39 C., and the pulse was 120, but the patient continued to be alert, complaining of very little pain, and was able to take fluids and food without nausea. It required about twelve hours for the burned area to become adequately covered with the sulfadiazine eschar. The red blood count on the evening of admission was 5.33 million and the hemoglobin was 13.5 Gm. (after plasma and saline). On December 10, 1941, the red blood count was 5.25 million; hemoglobin, 13.5. On December 11, 1941, the red blood count was 4.2 million, and at this time the plasma was discontinued and the patient was given whole blood transfusions. After the third day the patient did not require further plasma transfusions, but she was given small blood transfusions at frequent intervals. Beginning on the sixth hospital day the patient received sulfadiazine by mouth, and the blood level varied between 5 and 7 mg. Her general condition remained good following this, and, although she lost weight, her appetite was fairly good. The burn over the trunk remained fairly clean, but that over the arms became infected. The eschar was removed thirteen days after admission, and the granulating areas were grafted daily with Reverdin grafts performed under local anesthesia. Because of the extensive surface area involved, it was impossible to obtain sufficient skin to use split-thickness grafts. The patient was discharged from the hospital on March 25, 1942. At the time of discharge there was a contracture of the neck, left axilla, and left groin which will require future plastic operations.

Case 3.—S. S. (R.M.H., No. 147675), admitted February 4, 1942, and discharged April 16, 1942. The patient was an 8-year-old girl who was admitted after extensive burns of the body from ignited clothing. The burn had been covered with butter and olive oil prior to admission, and a tannic acid compress had been applied by the ambulance attendant. Her past history was nonessential. On admission the temperature was 37.6 C., pulse 110, and blood pressure 106/64. The patient was alert, having very little pain. The general physical examination was negative except for the burned areas. There were second- and third-degree burns over the right side of the trunk and back, involving also the right thigh and the right arm. According to the method of Berkow, it was estimated that 35 per cent of the body's surface was burned. On admission, hemoglobin was 14.1 Gm. The white blood count was 21,700. Plasma specific gravity was 1.0280, and the red cell hematocrit was 39.1 per cent. The patient was immediately started on shock therapy although at this time blood pressure, hematocrit, and hemoglobin were normal. A continuous intravenous drip of whole plasma was started, morphine was given, and the burned areas were débrided in a tub. Then the patient was placed on sterile sheets and sulfadiazine in triethanolamine was applied to the burned areas. With continuous plasma therapy she remained conscious and cooperative

lating protein may become reversed because of the excessive loss of albumin, and if the blood plasma protein concentration is low, generalized edema will develop.

Many investigators now feel that the liver damage which occurs during the toxemic phase of burns is probably due to generalized anoxia. The oxygen saturation of the blood in shock is decreased and stagnation of blood in the liver and elsewhere in the body may result in cellular damage. If this theory is true, it may not be necessary to hypothesize the elaboration of a toxin from the burned area. This theory is supported by the observations here that severely burned patients who have received adequate replacement therapy exhibit minimal signs of toxemia.

The clinical results indicate that a burned patient loses a large amount of fluid into the tissues and vesicles very quickly. This loss of fluid may continue for several days, but the rate of loss gradually decreases. During the first twenty-four hours, the patient should receive whole plasma, and the amount should be governed by the hematocrit and the plasma protein level. *After twenty-four hours, less plasma is required,* and the replacement by half saline and half plasma is usually adequate. If the patient can take fluids by mouth, the parenteral fluid requirement will be reduced by half. At the end of forty-eight hours, the hematocrit is usually declining, and whole blood transfusions may be necessary. *Experience indicates that it is almost impossible to give too much plasma, but very easy to give too little.*

This closely controlled method of fluid therapy requires adequate laboratory facilities and constant attention. It would be impossible to do all of the procedures under conditions of battle or in hospitals without adequate laboratories. The practical application is that whole plasma should be administered continuously for the first eighteen to twenty-four hours in amounts sufficient to prevent hemoconcentration. The extensively burned patient requires plasma for at least forty-eight hours, but during the second day it may be diluted with equal parts of saline. The need for whole blood transfusions is indicated by a decline in the hemoglobin level. Patients treated in this manner will have a better opportunity of surviving the burn shock, and the toxemia will be minimized.

The role of the various blood substitutes in burn therapy has not yet been determined. The use of pectin as well as acacia may be of value. Acacia has the definite disadvantage of causing liver damage and should not be used. The most promising material seems to be the precipitated albumin, but it has not as yet been tested adequately. Plasma is becoming more readily available throughout the country, and for the present is the most adequate means of replacement therapy.

Conclusions

1. The immediate and adequate instigation of replacement therapy (fluid and protein) is the most important feature in the primary treatment of severe burns.

2. Replacement therapy should be carefully controlled by continuous observation of plasma specific gravity (protein) and hematocrit or hemoglobin.

3. The toxemia of burns will be minimized if not entirely prevented by adequate fluid and protein replacement.

4. The local treatment of the burn will vary with individual experience and will be guided by the condition of the patient.

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Discussion

Dr. Walter A. Coakley, *Brooklyn*—In April, 1937, we published a paper on burns in the *American Journal of Surgery.* This paper was based upon a series of 300 patients, all of whom were burned severely enough to warrant hospitalization. In that paper we stated that the replacement of fluid loss and early skin grafting were important in preserving the life and in the healing of the burned patient and that no single local treatment should be the accepted one. Now, five years later, we are of the same opinion.

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TABLE 2.—Calculated Plasma Requirement in Burns

Patient	Wt. (Kg.)	Initial Observations: Hematocrit	Hgb. (Percentage)	T.P. (Gm. %)	Theoretic (Calculated) Plasma Requirement: Harkins (cc.)	Black (cc.)	Elkinton (cc.)	Plasma Received (cc.)
			Extensive Burns					
G. S.	76	63.2	140.5	5.6	2,002	1,441	2,361	5,800
A. D.	35	51 4	114	5.4	368	614	732	3,600
S. S.	34	39.1	87	6.6	On basis of initial observations, patient did not need plasma			
5 hrs. after burns, after 100 cc. plasma		47.5	105.5	6.3	121	261	364	1,400
			Moderate Burns					
H. S.	38	60	132	6.2	814	1,212	998	1,1000
D. B.	38	49.3	110	6.6	233	455	443	600

plasma to maintain their hematocrit and plasma protein concentration at an approximately normal level. Two other cases required approximately the theoretic amount of plasma, but they were not so extensively burned.

These patients must be followed very carefully even after the initial period. The hemoglobin usually begins to decrease about the third day, and this condition should be treated with whole blood transfusions. The following laboratory investigations should be made in order to control the subsequent course:

1. Daily red blood count and hemoglobin and hematocrit.
2. Daily urine; especially specific gravity, albumin, and red blood count.
3. Plasma specific gravity; and, if possible, this should be checked by chemical analysis of total protein, albumin, and globulin at frequent intervals.
4. Blood nonprotein nitrogen, icterus index, and chlorides.

The entire premise of fluid therapy depends on the daily evaluation of the patient and the replacement of plasma, whole blood, water, or electrolytes as may be required.

Local Treatment of Burn

The local treatment of the burn will vary with individual preference and experience. However, the general principles may be outlined as follows:

1. The patient who has 15 per cent or more of his body surface burned should receive shock therapy immediately following admission. A vein should be cannulated and a continuous injection of plasma should be started, preferably using a Murphy drip bulb.
2. Débridement. If adequate shock therapy is started early, débridement of the burn can be done without delay in all except the very extensive burns. Many methods of débridement have been advocated, varying from a simple removal of loose devitalized tissue to vigorous débridement under anesthesia. A burn should be treated as a traumatic wound, and when seen early can be converted from a contaminated to a clean wound. This requires the use of operating room technic with sterile gowns and drapes and gentle scrubbing of the area with removal of necrotic tissue. The dressing used should protect the area from subsequent contamination, if possible. This can best be done under light general anesthesia if the patient is in satisfactory condition.
3. The most common type of dressing is by means of an eschar forming agent. Tannic acid[14] or tannic acid and silver nitrate[15] are widely used, and have greatly decreased the mortality of burns. It must be emphasized that an eschar only prevents the external loss of fluid, and does not prevent the loss into the tissues beneath the burn. Infection is likely to occur if thorough débridement has not been done. The method advocated by Pickrell,[16] using sulfadiazine in triethanolamine, has the advantage of reducing infection, but the definite disadvantage of requiring from eighteen to twenty hours to form the eschar. The compression method of Allen and Koch[17] and of Siler[18] is a rational treatment of burns utilizing the principles of traumatic wound healing. Siler[18] has found that his patients seem to require less plasma, indicating that uniform compression may reduce the fluid loss into adjacent tissue.
4. The proper splinting of burned extremities and the early grafting of third degree burns is of paramount importance.

Discussion

The fluid which fills the vesicles of a burn is not whole plasma, but contains mainly albumin. The average content of the vesicle fluid has been found to be: total protein, 3 to 4.5 Gm. per cent, of which albumin constitutes 80 per cent or more. The albumin-globulin ratio of the circu-

lating protein may become reversed because of the excessive loss of albumin, and if the blood plasma protein concentration is low, generalized edema will develop.

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The treatment of the burned patient in recent years has undoubtedly decreased considerably the mortality and morbidity. This can be attributed not to any single method or drug in use (as many

proponents of certain drugs would like to make us believe), but rather to a more basic and fundamental understanding of the disrupted physiology which results. This includes many intricate and complex pathologic changes, not only locally, but throughout the vascular system, and includes many tissues and vital organs quite remote anatomically from the site of the burn.

Any treatment or series of treatments which takes all of these changes into consideration and tends to offset them and to keep the body in a more normal state of equilibrium is good treatment. Conversely, any treatment which disregards these fundamental changes, regardless of how zealously and enthusiastically it is carried out, is poor treatment.

According to the Bible, the human body is "fearfully and wonderfully made" and one realizes this when he undertakes the study of water balance in the human mechanism; for the human body is essentially composed of water, which constitutes more than 70 per cent of protoplasm, the structural basis of organic life.

It is necessary to the life of every living cell, and the digestive juices, blood, lymph, urine, etc., are all more than 90 per cent water.

Almost every chemical or physical phenomenon occurring in the body depends directly or indirectly upon the presence of water.

Goldstein has shown that every kilogram of body weight contains 0.6 to 0.7 Kg. of water; thus a child weighing 50 pounds net really weighs only 15 to 20 pounds of solids, but weighs 30 to 35 pounds in water content. It is obvious that any shift in water balance results in physiologic and pathologic changes.

One must carefully consider water balance if he is to treat burns according to proper chemical procedure, for it is the fluid shift which is the cause of secondary shock, and it is this secondary shock which is dangerous to life. Very few deaths occur in the stage of primary shock, which is probably due to overstimulation of multiple nerve endings.

This "fluid shift" is due to a local loss of fluid into the tissues, principally from leakage into the burned areas. The fluid has about the same concentration as blood plasma, its chloride content being a little higher than that of plasma. Its sugar and nonprotein nitrogen contents are about the same, while its protein content is at least 80 per cent of that of plasma. This latter fact is important and should be kept in mind.

The so-called fluid shift is accompanied by a decrease in blood volume with an associated reduction in the cardiac output, plus considerable fall in blood pressure. There is a resultant concentration of the blood, accompanied by a rise in hemoglobin, with a distinct decrease in blood chlorides. We had one child on our service with a hemoglobin of 160 per cent and a red blood count of 8,500,000.

It has been shown by experiment, using the rabbit, that this fluid shift reaches its height in the first twenty-four to thirty-six hours, and that under experimental conditions a burn of one-sixth of the body area gives a fluid loss of 70 per cent of the total blood volume in twenty-four hours. If these figures are applied to the human being, it will be seen that a man weighing 65 kilograms and having a blood volume of 5,000 cc., would suffer the staggering loss of 3,500 cc. of fluid in the first twenty-four hours. This extreme blood concentration takes place also in superficial burns.

How, then, shall we compensate for this fluid loss and keep the blood content up to normal? Obviously, only by forcing fluids, and, they can be forced properly only by keeping in mind what we learn from frequent blood pictures.

The intravenous route is the path of choice, and saline and glucose, Ringer's solution, and blood plasma are the useful replacements.

The needs of the patient must be kept in mind. Approximately 2,000 cc. to make up for insensible loss; 500 cc. for loss by the intestinal tract; 1,500 cc. for kidney function to dilate chemicals for excretion. An added amount should be used if vomiting, diarrhea, or fever are present.

Fortunately in diarrhea an attempt is made to preserve the blood volume by attracting fluids from the tissue spaces, owing to the raised osmotic pressure of the plasma proteins.

One must be careful in his attempts to replace this fluid loss, as the excessive use of replacements may cause a generalized edema, with a resultant extra load to the already overburdened patient. One should, therefore, always keep his acid-base equilibrium in mind, and it is well to remember that if we give a patient 5 liters of fluid in one day, using saline as a vehicle, we are administering not only 5,000 cc. of water but also about 45 Gm. of salt, which is about ten times the amount normally used by the body in one day.

Holdame has reported edema following the ingestion of 40 Gm. of sodium chloride. We, nevertheless, are faced with the problem of replacing excessive chloride losses, and saline intravenously is the best means we have at the present time. We not only replace the chlorides, however, for it is the sodium ion, not the chloride, that holds the water. If this be so, then the administration of excessive quantities of fluids containing sodium chloride is dangerous, for fluid-carrying sodium must be stored in the body, thus contributing to generalized edema.

Hypoproteinemia

With the extravasation of fluids into burned tissues the serum protein is lowered. We know that nutritional edema is in part due to the lowered colloidal osmotic pressure, which is the result of a lowering of the serum protein. Therefore, if we are to keep the body fluids up to normal without "waterlogging" the patient, it is well to keep up his serum proteins.

This is very important because, as we know, the function of the albumin and globulin is to: (1) retain blood in the capillaries, (2) help maintain blood volume, (3) regulate interchange between the blood and tissue spaces, and (4) influence filtration in the kidney glomeruli. The last calls attention to the relation of serum protein loss in burns to similar conditions in nephrosis, the time element of course, being different.

How, then, shall we restore the serum proteins? We have found plasma and amino acids parenterally most useful and would call your attention to the soy bean. A diet of soy bean flour is ideal because of its rapid conversion into blood protein.

As to what to apply to the burned area, we have used the following: tannic acid, from 5 per cent to 10 per cent; gentian violet, 1 per cent; tannic acid, 5 per cent, and gentian violet, 1 per cent, combined; a tannic acid jelly; picric acid ointment; silver nitrate solution, 10 per cent, and irradiated petroleum; and a codliver oil ointment. Each is useful; none can be universally used. Our preference has been for the freshly prepared tannic acid and gentian violet mixture. This is sprayed on the burned areas every fifteen minutes and dried with a hot-air blower similar to that used in hairdressing establishments. This is done for a period of two hours, then at longer intervals for the next twenty-four hours. A firm, soft coagulum is formed, pain is relieved, fluid loss is decreased, body heat is preserved, and infection is minimized. The patient is at all times upon a sterile sheet, and is under an electric light cradle, where a constant temperature of 99 F. is maintained.

We are now using $2^1/_2$ per cent to $3^1/_2$ per cent sulfadiazine in 8 per cent aqueous solution of triethanolamine. This makes a soft, pliable eschar, but every patient on whom we have used it complains of more or less pain. To the surgeon who has had experience in treating burns, there is obviously no panacea as far as the local treatment is concerned. We have had pleasant experiences where there has been suppression of urine in the use of short-wave diathermy applied to the kidney region for twenty minutes every two hours for twenty-four hours. This seems to aid in increasing kidney function. Of course, we cannot too strongly urge the early, frequent, and unstinting use of blood plasma.

CONSCIENTIOUS OBJECTOR PROBLEM ONE OF RE-EDUCATION

Pointing out that numerically the problem of the conscientious objector is of little importance, the *Journal of the American Medical Association* for May 15 says that "From an ethical point of view the problem is one of re-education, of instilling in the individual the appreciation of his civic responsibilities, and of awakening in him a feeling of national conscience and national unity. . . . .

"At the commencement of the first World War there were in the United States, according to D. E. Hoag, about 300,000 males classified as conscientious objectors. About 30 per cent of these were of military age. In June, 1918, the Surgeon General's Office sent out to various camps a special form for examination of conscientious objectors. Mark A. May, in his report to the Office of the Surgeon General, presented the then available information concerning the intelligence, education, grounds of objection, and social and political history of conscientious objectors. The report covered twenty camps and represented about 1,000 objectors. May pointed out that the intelligence of the conscientious objectors, as measured by the Army mental tests, was, on the average, above that of the white draft of the Army as a whole. At least 97 per cent of the men had sufficient intelligence to know what they were doing. About 50 per cent were Mennonites; less than 10 per cent of these went beyond the eighth grade. The 12 per cent of the total series who reached college were either Socialists, Dunkards, or Friends. The various religious sects involved, with the possible exception of the Friends, believe in the literal interpretation of the Scriptures. The grounds of objection were, in general, three: religious, social, and political. The religious objector makes his appeal to the Bible, church creed, and to conscience; the social objector to individual freedom; the political objector usually bases his objection on the ground of alien citizenship.

"Harry Stalker of Edinburgh reports the results of an examination of 12 persons with psychiatric states who were also conscientious objectors. They represented three types of personalities. . . . . The meager reports from continental European countries, whose laws do not provide for conscientious objectors, deal almost entirely with persons mentally involved. Thus, among 31 objectors studied by Peter Schulthess there was only one sane person; 15 were psychopaths, 4 of them feebleminded, and 6 schizoid (split personality). . . . .

"Prompt discharge from the army and appropriate institutional treatment are the effective solutions of the problem of the psychopathic objector. The problem of the sane objector is much more complicated. There is, of course, no intention on the part of our government to compel the genuinely conscientious religious objector to enter the armed services, for that would amount to violation of his constitutional rights, something we must guard against even in time of war. However, the degree of sincerity of his beliefs is difficult to determine. In the first World War, of 2,100 persons 1,500 were found to be sincere objectors and recommended for farm or industrial furloughs; 219 were found to be sincere objectors to combatant but insincere as to noncombatant service; 156 were found to be sincere objectors to combatant but willing to accept noncombatant service, 15 were found to be sincere objectors to combatant service but willing to work in reconstruction hospitals, and 122 were found to be insincere as to both combatant and noncombatant service.

"In this war many of our conscientious objectors are young men of good education, often of good family training. No doubt the same proportions prevail in relation to religious and political objectors as in previous wars. Fortunately the problem was given attention early by the Selective Service Administration, so that today many of these boys are engaged in occupations in the field of medicine, in hospitals, and in similar activities, where they are rendering a genuine service to the war effort. A number have volunteered to serve as subjects for important experiments in testing the value of life-saving technics in the services to be given to our troops in China and in the South Pacific. There are functions which the conscientious objectors can perform and for which many of them have already volunteered without demanding participation in combat."—*A.M.A. News*

UROLOGY IN INDUSTRY

GEORGE E. SLOTKIN, M.D., F.A.C.S., Buffalo

THE present popular conception of urology in industry is the belief that trauma, either by direct or indirect violence, is the major factor creating disease conditions. This fallacy was warranted because of the meager information emanating from industry and directly affecting the urinary tract. Trauma was and still is of prime importance but extrinsic factors must be seriously considered, and this discussion is based on these premises.

An analysis of industrial cases seen in the past five years disclosed the amazing information that of pathologic changes in the kidney, ureter, and bladder, 95 per cent are not directly traumatic. From this analysis it was concluded that, in addition to direct and indirect trauma following accidents, toxemias of clinical and bacterial origin were potent pathologic factors in causing disease of these organs. These clinical changes were created by the inhalation of gases, the by-products of acetylene welding and soldering, with the inhalation of ammonia, arsenic, hydrochloric acid, and lead. The type of lesion created ranged from acute hemorrhagic nephritis and amyloid nephrosis to aggravation of a previously existent chronic nephritis and the secondary constitutional symptoms resulting therefrom. The same lesions were noticed from inhalations following the use of cleaning fluids, the most potent and toxic of which is carbon tetrachloride marketed under various popular labels without suitable and sufficient warning regarding its use.

Because of the present trying conditions, industry is attuned to an unusual peak of maximal efficiency, and the manufacture of chemicals and their uses should be common knowledge to the physician in combating the hazards that result from exposure to the substances and disturb the efficient organization of industry by physical breakdown. The Niagara Frontier area is today the largest chemical center in the world, with thousands of highly trained employees. Without these chemical products our entire industrial program would collapse; therefore, the recognition of the relation of these various chemicals to diseases of the urinary tract is of paramount importance.

There has been a most commendable cooperative effort in these industries to prevent hazards by using this knowledge of the chemicals and their actions, and this preliminary knowledge was instrumental in reducing an occupational incidence of the development of carcinoma of the bladder in 12.8 per cent of the employees to complete freedom of new cases in the last year. Such advancement can be accounted for only by the diligent periodic examination of men in these industries and by the fullest cooperation by the employer in isolating the products in separate buildings and revising the method of manufacture to such an extent that at the present time contamination by inhalation is infinitesimal. A similar study and coordination of effort between the manufacturer and the physician would, I am sure, result in further reduction in the incidence of urinary changes from volatile gases if such changes were detected and treated accordingly.

Bacterial invasion has also been a prominent cause of urinary changes involving the kidney and bladder. Workers in grimy, dusty occupations, particularly heavy industry and foundries, tanners, and meat packers, through simple abrasion of the skin and by blood stream or lymph contamination, have developed secondary nephritis and pyelonephritis by indirect invasion. Serious consideration must be given to the development of a perinephritic and paranephritic abscess secondary to a folliculitis, boil, or carbuncle, especially if these lesions occur in workers employed in types of industry in which contamination or infection of the skin is frequent. This is particularly important since the urinary lesion may develop months after the inception of the apparently simple superficial, nondisabling primary source of infection.

Trauma to the urinary tract is still an important consideration.[1] The lesions of the kidney from such trauma are divided into concussion, contusion, and rupture, and the type of lesion is not dependent upon the violence encountered. Complete rupture has followed a simple muscle strain that resulted from lifting a heavy object, in contradistinction to a simple concussion following a fall of 60 feet. My experience paralleled the excellent review of Priestley,[2] who found that 3 out of every 45 injuries to the kidney were caused by muscle pull alone and about 40 per cent were due to falls. The rest followed direct trauma. The diagnosis in these cases is made by the history, by pain, which occurred in 75 per cent of the cases, and by the development of hemorrhage with hematuria present in 95 per

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From the Department of Urology, Millard Fillmore Hospital, Buffalo.

clots were noted in 33 per cent of the cases. These findings, plus shock and the development of tumor, makes the diagnosis very simple. The most important factor involved is the surgical judgment for expectant or operative treatment. In Priestley's series, 34 per cent were operated upon and 66 per cent were treated expectantly. In severe injuries, early surgery is a lifesaving procedure and if possible should be performed on the same day that the injury is received. When delay is the method of choice, bleeding is the important factor. In these cases, intravenous diodrast is of extreme usefulness and is preferred to cystoscopy. The type of operation, of course, depends upon the type and severity of the trauma. Where no surgery is employed, the possibility of latent secondary infection or the development of a stone should be a considerable factor in the final closing of the case.

Injuries to the ureter may or may not be involved with the kidney and are very rare. In an eleven-year survey by Rusche[3] at the Los Angeles Hospital only one case of ureter injury due to external violence was noted. McKenna,[4] however, noted that the ureter was severed completely with severance at the pedicle and completely with minor injuries. The repair was made by introducing a catheter to maintain the ureter's continuity. His preference in the diagnosis is also by intravenous means rather than by retrograde treatment that will lessen the hazard of contamination. This contention can be subscribed to.

Injuries of the bladder usually occur when the bladder is full and are associated and involved with fracture of the pelvis. A penetrating wound of a splinter from the pubis or ischium is driven into the bladder with consequent rupture. One case was noted of a direct penetrating wound; the patient fell 10 feet into a pit, and the bladder was penetrated suprapubically with a spike 4 inches long without injuring the peritoneum or pelvis. Fortunately, his bladder was full and the penetrating object acted as a trocar. Peacock's[5] series of cases of rupture of the bladder over a period of thirty-four years analyzes 28 cases, 18 in men, 10 in women. Industry accounted for 50 per cent of the ruptures and automobiles for the other 50 per cent. In hazardous occupations, loggers ranked at 25 per cent and laborers at 11 per cent. In 85 per cent of the cases, fractured pelvis also occurred. In a series of 113 cases of fractured pelvis, there were 13 tears of the bladder with 10 ruptures. There was a total mortality of 20 per cent in Peacock's series. His recommendation is prompt and early cystotomy as a lifesaving procedure before secondary repair. This percentage is confirmed in my series of industrial ruptures. Of course, the number seen was smaller, but the procedure followed was the same—simply treatment of shock, cystotomy for diversion of the urinary stream, and no attempt at any secondary repair, which followed convalescence.

One of the great controversial subjects is the relation between injury and ptosis of the kidney. Many a wearisome hour has been spent by physicians in civil and compensation courts on this mooted question. Many theories have been advanced as to the causal relationship between such factors. Perhaps a clarification at this time might be in order. My belief on this matter, of course, is not dogmatic, nor do I expect it to be the final word and accepted as authoritative. Every practicing physician and urologist has his own theories regarding this relationship. I wish simply to state facts as they have arisen in actual cases and the deductions which I have derived from this observation.

In industry, ptosis of the kidney is believed to occur as a result of force or blows dislodging the kidney from its normal bed and position. The kidney is one of the deepest-seated of all organs, lying close to the lumbar spines and protected by the heavy lumbar muscles with a pad of fat, the capsule of Gerota, acting as a buffer. Its natural support is poor, but adequate—the renal pedicle proper, its own fatty capsule, the abdominal pressure with some of its fat, and proper posture together with the minor ligaments of the hepatoduodenal on the right side and the phrenicorenal on the left side. I have always maintained and believed that just as a single blow is never of sufficient violence to cause carcinoma, so a blow is not strong enough to cause a displacement of a kidney unless at the time of the injury or fall sufficient disturbance took place first to create a severe contusion or laceration. If this, therefore, is necessary, the first symptoms that should be noted are evidence of renal injury. Unless there is such evidence at the time of injury, according to our diagnostic ability, the kidney cannot, as a result of such a single blow, be dislodged, assuming, however, that it had been in the proper position to begin with.[6] This premise is based on the fact, not theory, that individuals of moderate stature have fallen from heights of 60 feet without renal displacement. Athletes indulging in strenuous sports, of which I believe basketball and wrestling are the most violent, have, in my experience, never created a single case of ptosis. When such a ptosis does occur following an injury, there must have been involvement of the kidney first. It is also possible that the kidney was ptosed before the alleged injury but was symptomless through proper drainage.

If, as a result of such injury, the kidney becomes fixed from secondary inflammation or adhesion bands, with the development of an inability for the kidney to empty properly (i.e., pyelectasis which can be determined only by intravenous diodrast or retrograde cystoscopy in the upright position), then can one subscribe to the aggravation but not the creation of a ptosis from such an injury.

Renal ptosis has never been seen in patients of good musculature and proper posture. It is seen only in the asthenic, indolent patients, especially women, who are underweight and who have poor muscle tone. Ten cases are seen in women for every one in men and very few are found that involve the left side. While the diagnosis can be made readily by retrograde cystoscopy in the upright position, intravenous diodrast and serialograms with the Jarre-Sinex timer to determine the emptying time of the pelvis are, nevertheless, of maximal importance. A great number of cases will be seen that are symptomless in spite of the position of the kidney. Unless positive findings are made of displacement with retention and slow emptying time, the kidney is considered symptomless.

What is the importance attached to this study to industry? Because of the prevalence of this disease among under-developed, dieting young women, who are today supplanting men in industry, its importance cannot be overemphasized. The morbidity of this condition will undoubtedly rise because of the large influx of women into positions requiring more than simple clerical attention. Women are today being used in the airplane, chemical, and machine tool industries. As yet heavy industry has not had occasion to supplant the men, but at the present rate of growth of the armed forces women may be found even in this type of work. It is important that a physical examination include not only an x-ray of the chest and a urinalysis, as is routine today, but also a plain plate of the abdomen to determine the size, shape, and position of the kidneys, as a prophylaxis against the increased incidence of industrial ptosis.

This same depletion of young men and adults from industry has created another series of problems which will lead to grave consequences, as has already been seen in a few instances. Older men are being recalled to assume positions that are being evacuated through selective service. Men of 55 and over who were discharged because of the supposed hazard attendant upon their age are riding the crest of labor in all its forms. Moore[7] has shown that in all men over 50, carcinoma of the prostate is present in from 14 to 16 per cent of cases. This ratio has been verified by many investigators. One does not require much imagination to appreciate the number of cases of alleged back injuries, sacro-iliacs, and sciaticas that will arise in this large percentage of patients who are suffering from potential metastatic carcinoma. This changing trend of events places another burden on the examining physician and on the urologist who will eventually see these cases. For years, I pleaded with the insurance carriers for routine urinalysis on employees. Finally this was accomplished after the hazards of occupation with reference to the urinary tract were realized. It will now be necessary to supplement this examination with a prostatic examination in all men over 50, or perhaps a routine acid-alkaline phosphatase blood determination. Henline,[8] in a recent communication, clarifies this situation and emphasizes the importance of a careful rectal examination of the prostate, and because of the marked instances of carcinoma in men over 50, even justifies a biopsy in cases of doubt

Summary

Industry today is faced with a major problem beyond that of trauma. A thorough knowledge of the chemistry of industry and its relation to the urinary tract is required for proper morbidity and therapeutic results. The cooperation of industry with medicine has resulted in a marked improvement of working conditions for employees, the recognition of afflictions of the urinary tract relative to industry and their proper care. Because of the prevalence of ptosis in young women of today whose industrial activities are extended to heavier industry, more thorough examination should be required to discount the possibility of a subsequent claim for ptosis. Since this condition is insidious in its onset, the acute manifestations occur only with severe injury and renal changes. Finally, with the large percentage of older men replacing inductees in industry, the high incidence of carcinoma must be borne in mind and an examination before employment must be emphasized.

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Discussion

Dr. Walter G. Hayward, *Jamestown, New York*—Dr. Slotkin's report of the reduction in the development of carcinoma of the bladder from 12.8 per cent to 0 per cent in one year is truly remarkable.

Although a number of our local plants are engage

in war production work, none of them is engaged in the use of aniline dyes, so that that danger is not present in my community. I should like to hear him explain in detail the exact methods of safeguarding these men.

The development of peri- and paranephritic abscess following boils occasioned by work in industry has been a source of considerable argument and litigation in my locality. I can recall one case, unquestionably due to occupation, that a Pennsylvania court disallowed.

As to the treatment of kidney trauma, you will all recall, not so many meetings ago, the debate that was held on whether to operate promptly or to wait and treat expectantly. I think every urologist has his mind pretty strongly made up on the subject, and it is my own feeling that no set rule can be laid down, but each individual case must be treated as such.

Ptosis of the kidney, as regards accident, is a headache to any urologist who has been called on the stand to testify. Personally, I have not seen a case that I have felt could be attributed to accident. In some cases, we were fortunate enough to locate x-rays of the claimant that had been taken prior to the accident, disproving his claim, and in others, pre-existing kidney lesions were found.

A few years ago Dr. Edward McCague, professor of urology at the University of Pittsburgh, wrote an interesting article on the occurrence of urinary calculi secondary to trauma. This was especially prevalent following fractures of the femur and fractures of the spine. However, he admitted in his article that although a careful survey had been made in their rather expensive service, comparatively few cases had occurred. This interested me enough so that I immediately called it to the attention of our orthopaedic men, and from that time on, a fairly close check was kept. This has not been possible with private patients, on whom seemingly unnecessary x-rays would place a burden, but it has been done on a number of the city cases, and so far we have been unable to find any calculi developing secondary to fractures. One case of my own, a fractured pelvis, developed a bacillus proteus infection and promptly showed bladder calculi.

Dr. George F. Hoch, *New York City*—Dr. Slotkin showed that few nephroptoses are due to trauma, in which I concur. Of 214 cases noted by Kelly, only 13 had a traumatic history.

DR. STRECKER IS CONSULTANT TO SECRETARY OF WAR

Dr. Edward A. Strecker, of Philadelphia, president of the American Psychiatric Association, has been named special consultant to the Secretary of War for the Air Forces of the United States Army, according to an announcement by the Committee on Public Education of the American Psychiatric Association.

In this capacity, Dr. Strecker will act as adviser to War Secretary Henry L. Stimson on all questions relating to psychiatry in the Air Forces. Serving as a civilian adviser, Dr. Strecker will be on call at all times by the War Department.

The appointment marks the second special consultant's post for Dr. Strecker. A while ago, he was named consultant in psychiatry to the Surgeon General of the U.S. Navy, in which capacity he acts as adviser in psychiatry to the Navy's Bureau of Medicine and Surgery.

Dr. Strecker recently established the first intensive training school for naval medical officers in Philadelphia. All of the medical and hospital facilities throughout the city are cooperating in this program, three months in length, which has already graduated more than a score of officers. A third class is in training.

Dr. Strecker has had extensive military experience. In World War I he held the rank of Major in the Army Medical Corps, as division neuropsychiatrist for the 28th Division in France. He became known as an authority on the military psychiatric disability formerly known as "shell shock."

Dr. Strecker is professor and head of the department of psychiatry at the University of Pennsylvania's Graduate School in Philadelphia, and the Medical School of the same university. He has been medical and clinical director of the Pennsylvania Hospital's Department of Nervous and Mental Diseases since 1917. He is chief of service and consultant at the Institute for Mental Hygiene of the Pennsylvania Hospital, and consultant for Bryn Mawr College and the U.S. Veterans' Bureau.

Author of a best-selling medical work on alcohol called *Alcohol—One Man's Meat*, Dr. Strecker has also made special researches on abnormal behavior in children. He is staff neurologist for the Pennsylvania, Philadelphia, and Germantown Hospitals.

In 1939, Dr. Strecker was selected to deliver the Salmon Lectures on Psychiatry and Mental Hygiene. He served as clinical professor of psychiatry and mental hygiene at Yale University in New Haven, Connecticut, from 1926 to 1932.

As president of the American Psychiatric Association, the oldest association of medical specialists in the country, he will preside at that group's centennial anniversary next spring in Philadelphia, site of the Association's founding.

HANDBOOK FOR MEDICAL LIBRARIANS PUBLISHED

After three years' cooperative effort on the part of the Medical Library Association and the American Library Association, the first comprehensive work for medical librarians has been published. It is entitled *Handbook of Medical Library Practice* and is a compilation of articles contributed by leading authorities. Its editor is Janet Doe, assistant librarian of the New York Academy of Medicine.

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Clinical Significance of the New Concept of the Pathogenesis

Essentially, the treatment of extravasation resolves itself into (1) multiple incisions of the infiltrated tissues and (2) diversion of the urinary stream.

All writers on this subject indicate that Colles' fascia is continuous anteriorly with the dartos layer of the scrotum and penis. This is a very important point. From a surgical standpoint, if extravasations passed only beneath the dartos, only superficial incisions would be necessary to drain them. However, if extravasations invaded the deeper structures and the tunica vaginalis testis, deeper incisions would be required. Campbell,[5a] who has had extensive experience with extravasation, has stressed the importance of widely and deeply incising the scrotal sac, to such an extent that the completion of the operation finds the testes and spermatic cords completely exposed, "swinging free," bare, and, later, retracted over the lower inguinal regions. Since it has been shown that extravasated fluid (anatomically or clinically) does not invade the deeper structures or the tunica vaginalis testis, such a radical procedure would seem to be unnecessary and detrimental.

In the minds of those[5a,6,7] who have advocated diversion of the urinary stream, besides multiple incisions, in the treatment of extravasation, the rationale is to prevent more urine from being squeezed out into the tissues. On the basis of this reasoning many surgeons have failed to divert the urinary stream when stricture or retention was absent. In fact, many prominent urologists[8,1,9] do not mention this procedure.

The omission of urinary diversion has led to an unwarranted and high mortality. Even those who practiced diversion could not reasonably explain this procedure in patients who were obviously voiding well and who presented no stricture.

A glance at Fig. 1 will reveal that all periurethral inflammations or lesions must first penetrate the very vascular bulb or part of the spongiosum to reach the superficial perineal pouch.

In this passage from the urethra to fascial space they invariably involve the vascular tree, thereby easily setting up a vascular thrombosis or thrombophlebitis. Anterograde or retrograde extension of this process is favored by the contractions of the bulbocavernosus and external sphincter muscles, which are brought into play with each act of voiding. This explains the paradox in which the condition of extravasation is aggravated in those patients who continue to void. Moreover, this concept of the pathogenesis explains the development of extravasation without stricture or obstruction, and also the urgent necessity for diversion of the urinary stream, regardless of whether or not the patient is voiding well. These muscles must be put at absolute rest in order to prevent them from squeezing the thrombosed bulb and thereby extending the process into the scrotal and penile vessels.

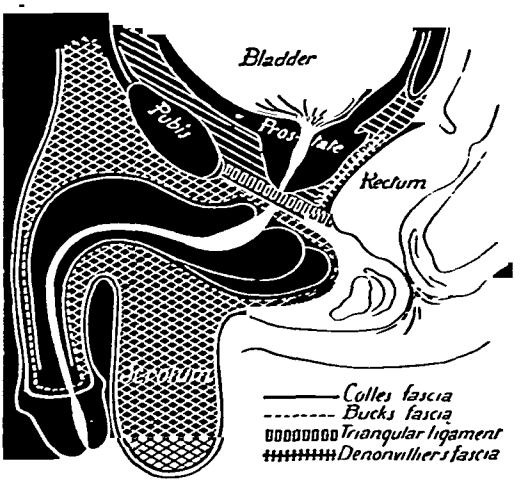


FIG. 1. Showing the fascial planes concerned in urinary extravasation as modified by Eisendrath and Rolnick after Wesson. Cross-hatched area represents infiltration below the urogenital diaphragm, whereas obliquely shaded area represents infiltration above the urogenital diaphragm.

This latter process accounts for the high incidence of toxicity and jaundice, the rapid appearance of the swelling of the penis and scrotum, and ultimate gangrene. On the other hand, if extravasated urine, blood, or an abscess occupy the superficial perineal pouch, it is easy to see how the pressure of the mass in the confined space would produce vascular obstruction of the scrotal vessels without actual thrombosis. This mechanism is seen in many periurethral abscesses. When the abscess is incised, the edema disappears because of the release of the pressure.

In this connection, I believe that the condition known as "idiopathic scrotal gangrene" is only another form of urinary extravasation or periurethral gangrene. All the reports[5a,10,11,12] on this mysterious condition use only one criterion in differentiating it from periurethral phlegmon; namely, the absence of stricture or obvious urethral lesion. In the light of the present concept, however, idiopathic scrotal gangrene is easily explained without stricture or obvious urethral lesion.

URINARY EXTRAVASATION (PERIURETHRAL PHLEGMON)

A New Concept of the Pathogenesis and the Treatment

EDWARD O. FINNEGAN, M.D., F.A.C.S., New York City

AS THE title indicates, there are two theories to explain the pathogenesis of urinary extravasation: (1) The older notion subscribed to the belief that urine was actually "squeezed" out into the tissues through a defect in the urethra. (2) The newer conception explains the picture on the basis of bacterial invasion, chiefly by anaerobes.

According to Hinman,[1] "Three types of urinary extravasation are commonly encountered: (1) Between the layers of Buck's[2] fascia from the pendulous or bulbous urethra. (2) Within the superficial perineal pouch below the urogenital diaphragm from the bulbomembranous urethra, or from the membranous urethra with rupture of the inferior layer of the triangular ligament. (3) Above the urogenital diaphragm, from the prostatic urethra if associated with rupture of the superior fascia of the urogenital diaphragm."

Of these three types the second is the commonest, and it is this one with which we are primarily concerned in this paper. Fig. 1 (modified after Wesson) demonstrates the various paths of urinary extravasation. Theoretically, if we presume a defect in the bulbomembranous urethra, the extravasated urine should extend beneath Colles' fascia into the perineum in front of the inferior fascia of the urogenital diaphragm. The attachments of Colles'[3] fascia are such that the fluid must extend forward beneath the dartos of the scrotum and penis, and then up over the abdomen beneath Scarpa's fascia. It may extend as high as the axilla. The urine cannot spread laterally or posteriorly because of the attachment of Colles' fascia to the pubic rami and the inferior layer of the urogenital diaphragm. Its spread on the thighs is limited by the fascia lata.

Pathogenesis

In a previous communication,[4] the anatomy, bacteriology, and pathogenesis of urinary extravasation were reviewed. The superficial perineal pouch of Colles' in cadavers was injected with radio-opaque colored fluid, the amounts and pressures were recorded, x-ray demonstrations were made as increments of fluid were injected, and, subsequently, the cadavers were dissected.

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From the Surgical Service of Dr. Joseph B. Stenbuck at the Harlem Hospital, New York City.

The following conclusions were derived from these studies and experiments:

1. Anatomically, Colles' fascia is so disposed as to allow (theoretically) a progressive urinary infiltration of the perineum, scrotum, penis, groins, and anterior abdominal wall.
2. Injection experiments reveal that the clinical appearances can be simulated (with the exception of penile and abdominal involvement) by using pressures and amounts of fluid comparable to those expected on voiding.
3. Urine alone does not suffice to produce the clinical pictures.
4. Other factors are operative in the live subject—namely, (*a*) the presence of bacteria, (*b*) the tonicity, contractility, and elasticity of the tissues, and (*c*) an active circulation.
5. Various combinations of these factors, especially the virulence of the invading organisms, account for the varied clinical syndromes encountered.
6. The close proximity of the vascular tree to the urethra (bulb) permits the easy development of vascular thrombosis or pressure phenomena from encapsulated fluid or abscess.
7. Vascular thrombosis or infectious thrombophlebitis probably accounts for the frequency of rapid swelling of the genitalia and for the swift gangrene, severe toxemia, and jaundice.
8. Injection experiments demonstrate the ease with which the vascular tree is inadvertently entered.
9. Injection experiments conducted by x-ray and dissection together with clinical and autopsy records fail to show any case wherein the tunica vaginalis testis is involved in extravasation.

Factors Which Determine the Characteristics of Extravasation

1. Anatomic distribution of fascial planes.
2. Nature and location of urethral lesion.
3. Hydrodynamic pressure of extravasated fluid.
4. Vascular obstruction induced by pressure of perineal abscess, extravasated fluid, or blood.
5. Occurrence of vascular thrombosis or thrombophlebitis.
6. Elasticity, tonicity, and contractility of the tissues.
7. Nature of the invading organism.

2. It reduces to a minimum the trauma and manipulation of the urethra during the acute infection.

3. It frees the urethra from the presence of a foreign body and puts the muscles at rest.

4. It permits the tube to be more easily cared for and kept patent.

5. It is followed less often by perineal fistula.

Disadvantages of Perineal Urethrotomy

1. It requires unnecessary and harmful manipulation of the diseased urethra..

2. Thrombophlebitis, bacteriemia, pyelonephritis, undue urethral hemorrhage, or rupture of the urethra may be induced thereby.

3. It is technically difficult with impassable strictures without a guide.

4. It does not so effectually put the urethral muscles at rest.

5. It does not permit the tube to be so easily cared for postoperatively.

6. It is followed more frequently by perineal fistula.

Disadvantages of Catheter Drainage

1. It does not put the urethra at rest.

2. With so much infection already present, the catheter only aggravates the urethritis.

3. It is difficult to keep in place and patent.

4. It cannot be attached to the swollen and infiltrated penis.

5. It moves and loses the optimum site for drainage of the bladder, so that urine is either retained in the bladder or forcibly expelled alongside the catheter.

6. Its presence may induce prostatitis, seminal vesiculitis, epididymitis, or thrombophlebitis.

7. It results in the highest mortality.

Postoperative Care

1. Frequent wet dressings with warm solution of potassium permanganate.

2. Careful daily observation of wounds to note whether further infiltration develops, so that prompt revision, secondary incisions, or removal of sloughing tissue may be accomplished without delay.

3. Following control of extravasation, subsidence of fever, and stabilization of the patient's general condition, hot sitz baths, and gradual dilation of urethral strictures is begun. This is most easily conducted while suprapubic drainage is continued.

4. Periodic dilation and careful follow-up will prevent recurrence.

Prognosis

Three principal factors contribute to the high mortality in extravasation:

1. Severity of infection and toxemia.
2. Delayed treatment.
3. Improper surgical management.

Influence of Delayed Treatment

1. Of 13 survivors operated upon by suprapubic cystotomy or external urethrotomy, 9 were operated upon on the day of admission—whereas of 16 patients who died, only 6 were operated upon on the day of admission.

2. Of 7 patients that died after suprapubic cystotomy or perineal urethrotomy, only 2 were operated upon on the day of admission; the other 5 cases presented a delay of from one-half to five days before operation.

3. Of 7 patients that died following suprapubic cystotomy or perineal urethrotomy, the following number of days elapsed from onset to operation: 4, 7½, 7, 7, 7½, 11, and 12 days, respectively.

Conclusions

1. A newer concept of the pathogenesis is based on vascular involvement.

2. This concept not only explains the varied clinical syndromes encountered, but also yields a more rational basis for treatment.

3. Diversion of the urinary stream is essential even in the absence of urinary obstruction.

4. Injection experiments conducted by x-ray and dissection together with clinical and autopsy records failed to reveal any case wherein the tunica vaginalis testis was involved. Therefore, the avoidance of the deeper structures of the scrotum and especially the tunica vaginalis testis is stressed as a preventive of unnecessary mutilation.

5. Of 32 cases reviewed 16 died. Of 3 cases not operated upon all died. Of 11 cases subjected to suprapubic cystotomy 7 survived, and of 9 cases subjected to external urethrotomy 6 survived, while of the 9 cases operated upon without any diversion only 3 survived. Of the last 3 cases, 2 had only localized conditions resembling periurethral abscess. The other spontaneously ruptured his perineum, thereby adequately diverting the urinary stream and saving his life.

6. Of the last 7 consecutive cases treated in the latter part of 1938 and 1939, when the principles enunciated in this paper were emphasized, there were no deaths.

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New York City

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Causative Factors

At the Harlem Hospital in New York City, 32 cases were found in the ten-year period from 1930 to 1939 inclusive. Of these, 28 were colored patients. The high incidence of gonorrhea with its complications of periurethral abscess and stricture, neglect, and unwarranted and unskillful urethral instrumentation are the factors which combine to make extravasation more common in this hospital than in other institutions.

The most important factor in causation was stricture, which was found in 19 of our series of 32 cases. Nine patients had had urethral instrumentation, 2 patients suffered trauma from other causes than urethral instrumentation, and one case had a urethral stone. It is remarkable that 6 cases were voiding well and presented no genitourinary symptoms on admission to the hospital.

Both cases that had trauma not caused by instrumentation were compensation cases. They had fallen while at work and had struck the perineum. Partial rupture of the urethra due to this straddle injury was not promptly treated by diversion and led to subsequent extravasation.

History and Onset of Urinary Extravasation

1. Antecedent history of gonorrhea with frequency, dysuria, urgency, and gradually diminishing urinary stream may be elicited in rational patients.

2. All of these symptoms may be absent in insidious cases.

3. Careful questioning usually elicits a history of long-standing urethritis or stricture.

4. Superimposed upon either of these two conditions, one finds the situation recently altered by the advent of periurethral abscess or trauma incident to urethral instrumentation or straddle injury.

5. The onset of periurethral abscess may be very insidious, and not until it is associated with urinary retention, severe toxemia, or frank extravasation is the patient forced to go to the hospital.

Cardinal Symptoms

1. The chief symptoms are those of toxemia. Malaise, chills, fever, and prostration drive the patient to seek hospitalization.

2. Local signs and symptoms may be so minimal that valuable time is often lost before the true nature of the condition becomes evident.

3. With increasing toxemia and with the advent of urinary retention, hiccough, disorientation, delirium, stupor, and coma rapidly supervene. Jaundice is commonly present.

Local Signs of Extravasation

1. Initial tender, edematous swelling in perineum.

2. Rapid spread to scrotum, penis, groins, and abdominal wall.

3. Swelling is continuous, symmetric, pits on pressure, and yields slight tenderness.

4. In late cases there is enormous swelling of the scrotum and penis, with edema, bogginess, dusky redness, weeping, and desquamation of the superficial layers of the skin.

5. Finally, irregular black patches of skin and occasional frank crepitation make their appearance.

DIFFERENTIAL DIAGNOSIS

between

Urinary Extravasation	Periurethral Abscess
1. Rapid, progressive spread	1. Slow enlargement and tendency to confinement
2. Tendency toward symmetry	2. Tendency toward asymmetry
3. Poorly defined limits	3. Well-marked limits
4. Pits on pressure	4. Induration and tenseness
5. Minimal tenderness except in perineum	5. Well-marked tenderness
6. Exploratory puncture may reveal any type of fluid in perineum depending upon the cause	6. Exploratory puncture reveals pus
7. Marked toxicity with high incidence of jaundice	7. Mild toxicity

The two conditions may coexist, and frequently extravasation begins as a periurethral abscess.

Since both conditions require incision and drainage, the differential diagnosis is academic except for the urgency of diverting the urinary stream. Moreover, some periurethral abscesses, associated with urinary retention, are best treated by the addition of an external urethrotomy or suprapubic cystotomy.

Treatment

1. Operative intervention is essential and is always an emergency procedure. Spinal anesthesia gives the lowest mortality.

2. Besides multiple incisions of infiltrated tissues, diversion of the urinary stream is of paramount importance.

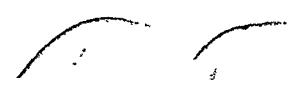
3. Diversion of the urinary stream is accomplished by one of three methods: (*a*) suprapubic cystotomy; (*b*) external urethrotomy; (*c*) indwelling urethral catheter (which is condemned).

4. Multiple incisions should be short and superficial. No necessity for exposing the testes. Unnecessary mutilation is thereby avoided.

5. The general condition requires strenuous measures: continuous intravenous infusions, transfusions, tetanus and anaerobic antitoxin, gas gangrene serum, and sulfonamides.

Advantages of Suprapubic Cystotomy

1. It most effectually drains the bladder.



EPIDIDYMITIS: ITS RELATIONSHIP TO TRAUMA AND COMPENSATION

Roy B. Henline, M.D., New York City, and William Yunck, M.D., Seattle, Washington*

THE development of epididymitis and its relationship to trauma, as defined by the New York State Workmen's Compensation Law, present a difficult problem to the urologist. The causes, both direct and indirect, and the pre-existing conditions necessary for the production of epididymitis are imperfectly understood. Only a few of the many patients suffering from prostatic or urinary infections develop an epididymitis, even though they may perform strenuous physical exercises. However, according to the Compensation Law, an illness is compensable even when it occurs or becomes aggravated because of a pre-existing condition. The opinions expressed by urologists in these cases are so divergent that a review of the relationship between epididymitis and trauma, with regard to our Compensation Law, seems justified. It is hoped that a clearer picture of the likely mode of infection, in the light of our present knowledge, may be presented, so that urologists will be closer to agreement.

Causation

There is little or no controversy regarding the compensability of a patient who has received a direct blow on the scrotum, resulting in the production of an epididymitis. For evidence of direct trauma, one should note immediate swelling in the scrotum, with severe pain and some degree of shock, which would be sufficient to prevent the man from continuing work. An effusion of serum or blood will be present in the tunica vaginalis, yet this may shortly be overshadowed by the epididymal lesion. The causal relationship between injury and disability in such a patient is apparent.

Any of the pyogenic bacteria may cause an epididymitis, but the staphylococcus, streptococcus, colon bacillus, gonococcus, and tubercle bacillus are the most frequent invaders. Although it has been shown that these bacteria cause the malady, their exact mode of entry to the epididymis is not completely understood. Every urologist has his own mental picture of how the epididymis becomes infected, but this point has not been conclusively proved and is still conjectural. The relationship, if any, of indirect trauma, such as straining, tugging, and strenuous lifting, to the production of an epididymitis, even by aggravating a pre-existing condition, must be considered.

Mode of Infection

Most cases of infection of the epididymis are produced by the migration of bacteria from the prostatic urethra, seminal vesicle, or urine along the vas deferens to the epididymis. Blood-borne epididymal infections are rare. However, other factors must conspire with prostatic, seminal vesicular, or urinary infection actually to produce epididymitis. Our knowledge of most of these accessory factors has been obtained from experience—the study of cause and effect—rather than from actual proof of the manner in which they conspire to produce the epididymitis.

In other words, with the same underlying infection not all patients will develop an epididymitis, even under similar circumstances. Experience has taught that, in the presence of genital or urinary infection, certain things may act as accessory agents in the production of an epididymitis and, hence, should be avoided. These may be briefly summarized as follows:

1. Metal instruments should not be passed into the urethra in the presence of an active urethral discharge, particularly if gonococci are present.
2. In acute prostatic infection the prostate may be *very carefully palpated*, but *not* massaged.
3. Dilatation of urethral strictures, in the presence of urinary infection, may result in an infection of the epididymis.
4. Sexual excitement and the use of alcohol predispose to the production of epididymitis in the presence of urinary infection.
5. *Excessive strain, lifting,* or *violent exercise* should be avoided since experience has taught that such strain predisposes to the setting up of epididymitis.

Although the exact relationship between direct or indirect trauma and infection is unknown, wisdom, based on experience, dictates that we accept the above as factors in the production of epididymitis until the mode of extension has been better demonstrated.

Occasionally a patient will develop an epididymitis, yet careful search will fail to disclose any evidence of prostatic, seminal vesicular, or

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Discussion

Dr. Joseph D'Errico, *North Tonawanda, New York*—Dr. Finestone's paper has not enlightened me very much. In fact, feeling that we had finally come to a rational treatment for urinary extravasation, I am now confused, if anything.

First of all, let us distinguish between a periurethral abscess, per se, one with secondary extravasation, and traumatic extravasation without infection. Much is left unexplained when it is said that the orthodox picture of perineal trauma followed by swelling limited in extent by the triangular ligament, Buck's, Colles', and Scarpa's fascia with its familiar picture in its various stages is not extravasation. A voiding pressure of 80 mm. of mercury does not prove to me that an insulted vesical control mechanism cannot go well over that. How many of us have seen the 20-year-old man force the fluid level up in the irrigator under intense spasm while the scope was in place? A hypodermoclysis certainly does not need more than 80 mm. of mercury pressure to cause diffusion of the fluid.

The initial process is certainly extravasation. At what point the biochemical process of vessel thrombosis and tissue necrosis aids extension along the familiar planes is a matter of speculation. That these patients die of infection, anaerobic or aerobic, is not borne out by reliable culture studies with proper evaluation. Most of us certainly do not have infected bladders. Then why should we die of infection if this more or less sterile fluid extravasates?

The tremendous vascularity of the bulb and corpus cavernosum is familiar to all of us. We have seen patients who show a sharp rise in temperature on first voiding after prostatectomy, have positive blood cultures, yet recover in four or five days without any particular treatment. They literally voided bacteria into their blood streams.

To impress his underlings, Dr. H. H. Young gave a transfusion via the corpus cavernosum, thereby demonstrating the tremendous absorptive power of this particular area of the vascular system.

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Dr. George F. Hoch, *New York City*—Dr. Finestone deserves our plaudits for his clinical and experimental observations. His treatment of these cases should be standard.

NEW METHOD OF ADMINISTERING MORPHINE

Because of the critical shortage of tin, the U.S. Office of Civilian Defense has been unable to procure syrettes for administration of morphine by physicians of Emergency Medical Service. To meet this serious difficulty, a new device using glass and plastic has been developed.

This device consists of a small, scaled-glass ampule containing one-fourth grain or one-half grain of morphine in solution. This solution is under sufficient pressure to eject the entire contents. A piece of transparent plastic tubing encloses the neck of the ampule and connects it to the hub of the needle. The shaft of the needle is enclosed in a small glass tube, to which is attached a stylet. At the hub of the needle within the plastic tube is a small filter.

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the presence of pus, and in doubtful cases a urine culture should be made. The prostate should be *gently* palpated for evidence of infection. At a later period, a smear of the prostatic fluid should be examined for the presence of pus.

If pus or infection is found in the urine, or in any quantity in the prostatic smear, one must then consider the possibility of this infection being a *pre-existing* focus of infection which has been *aggravated* by indirect trauma to produce the epididymitis. In the light of our past experience and the evidence pointing to the mode of infection of the epididymis, it is difficult to avoid the assumption that the presence of infection in the urine or the prostatic fluid is one of the factors in the production of epididymitis, and may be aggravated by sudden strain or lifting. Kennedy[7] points out that it has long been an accepted practice to prohibit strenuous physical activities in patients suffering from gonorrheal prostato-vesiculitis in an effort to prevent infection from extending down the vas deferens to the epididymis. The mode of extension to the epididymis appears to be the same when other organisms are present. He further states that if our assumption that excessive physical exercise predisposes to the extension of infection to the epididymis in venereal infections is correct, it is not unreasonable to assume that the same factors may produce an extension to the epididymis from other infections in the prostate or seminal vesicles. This conclusion is difficult to avoid in the light of our present knowledge and past experience.

However, this same conclusion does not apply to most accident insurance cases. Most accident policies do not cover an aggravation of a pre-existing condition, and direct trauma must be substantiated to warrant a claim on the insurance company. On the other hand, the wording of the Workmen's Compensation Law of New York makes an illness compensable if the condition was caused by an injury sustained by the patient while working, or if it resulted from a previous disease or infection which was aggravated by reason of his occupation. Since it is possible for a strain or lifting, in the presence of a urinary or prostato-vesicular infection, to be a factor in the production of an epididymitis, either the Compensation Law should be revised, or such cases should be considered compensable.

Summary

Past experience and available experimental evidence have taught us that a strain or excessive physical exercise should be avoided in the presence of infection in the urine, prostate, or seminal vesicles because of the possibility of producing an epididymitis. Until we have satisfactory evidence to controvert this theory, it seems logical to assume that a severe strain may be sufficient aggravation of a pre-existing urinary or prostato-vesicular infection to aid in the development of an epididymitis. When the history, presence of infection, and epididymitis develop in a logical sequence, the assumption of a relationship between the indirect trauma and the epididymitis would seem to be justified.

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Discussion

Dr. George F. Hoch, *New York City*—The tendency of the day is revolutionary. It seems to me that Drs. Henline and Yunck have gone to an extreme in trying to establish a case against the carrier in regarding epididymitis to be compensable in all cases. The carriers for whom I have examined these cases are willing to settle the claims where I have indicated that trauma may have been a factor. There must be some place where urologists and the Compensation Board can meet in determining the compensability of each case. There is no argument against the causes given by these essayists, but as long as they are grouping sexual excitement and exercise as causes how are they going to settle the question? I have felt that where no infection exists as evidenced by urinalysis, smear, or rectal examination the case is compensable. This also brings up the question of a positive staphylococcus smear. In his work, Creevy has shown that about 30 per cent are pathogenic.

I would like to mention torsion of the cord as a traumatic lesion that has to be differentiated from epididymitis.

It is a far cry from Wesson and his plea against traumatic orchitis to this paper. When I tried to get one of the referees to formulate some rule on compensation in epididymitis, he said it would always be controversial. I believe he was made a referee for his sagacity as well as for his legal knowledge.

urinary infection. Prostatic enlargement and urethral stricture may also be absent, and the cause of the epididymitis is not ascertained. It has been suggested that in such cases the epididymitis is produced by chemical irritation from urine that has been forced down the vas deferens by a sudden strain.

Most urologists accept the theory that tuberculous involvement of the epididymis occurs, in most cases, from a primary urinary-tract infection in the kidney. In many instances, the primary focus in the kidney is not demonstrable clinically. Although its onset may be sudden and impossible to differentiate clinically from that of any other epididymitis, tuberculous epididymitis may begin insidiously, involving the upper pole of the epididymis more frequently and often producing a nodular or beady enlargement of the vas deferens.

The relationship of trauma to the production of tuberculous epididymitis is very difficult to decide. It may be possible for a sudden strain to force urine containing tubercle bacilli from a tuberculous kidney down the vas deferens. Tubercle bacilli from an infected kidney usually are found in the urine in showers, and at most times the urine contains no bacteria. Therefore, to make this theory tenable, such a sudden strain must occur at a time when a shower of bacteria has invaded the urine. However, according to Thomas,[1] tubercle bacilli are believed at times to be present in the vas deferens or epididymis without producing clinical epididymitis. At such times, even slight local trauma or strain may be sufficient to incite an inflammatory lesion in the epididymis caused by tubercle bacilli.

There is evidence for believing that, under certain conditions, urine may be forced down the vas deferens, carrying with it any bacteria present in the urine. O'Conor[2] cites two cases of prostatic hypertrophy in which silvol was injected into the patient's bladder after catheterization. Vasectomy, performed within twenty-four hours, showed the presence of silvol in the vas deferens as far down as the tail of the epididymis. Kreutzmann[3] found that infected bladder urine (as determined by culture) was necessary to produce an infection in the vas deferens, but that in a group of patients with prostatitis alone, excision of a portion of each vas failed to show the presence of infection. He concludes that viable organisms may be present in the vas without producing epididymitis, but that epididymitis occurs only in the presence of infected urine. He further suggests that, under certain conditions, reflux of urine into the vas deferens may occur. His studies showed that instrumentation doubled the possibility of producing epididymitis. Ewell[4] believes that urine may be forced into the vas deferens by a strain and states that indirect trauma (strain) may force infectious organisms in the urine, prostate, or seminal vesicle into the vas deferens. Pelouze[5] states that in 98 per cent of gonorrheal epididymitis the gonococcus reaches the epididymis by being forced down the vas deferens, and that this can largely be prevented by instructing patients to *avoid heavy exertion* and *sexual excitement* when there is any quantity of infected urine in the bladder. He believes that most nonspecific epididymitis is due to infected urine being forced down the vas deferens, frequently because of hyperplasia of the prostate, urethral stricture, a small urethral meatus, or prostatitis. A similar sequence of events may follow a severe strain, during which the external vesical sphincter is held so tightly closed as to act in the same manner as an urethral obstruction.

Cummings[6] states that 98 per cent of patients with chronic prostatic infection have one or more foci of infection elsewhere. Pelouze also believes that most cases of prostatitis are secondary to some more distant infective focus, and not due to transplantation of bacteria from the urethra. Such foci may be found in the teeth, tonsils, furuncles, or an intermittent pyelonephritis. The prostatic infection may occur silently, with the production of few or no symptoms, and may exist thus for years, the patient being entirely unaware of its presence. The urine may be sterile and contain no pus. In some instances—often owing to excessive use of alcohol or sexual excitement—this infection may become more acute and some of the pus may exude from the prostate and produce an infected urine. If a sudden strain should occur at this time, particularly with a filled bladder, some of this infection may be forced down the vas deferens with the urine. In other words, these smoldering and often asymptomatic prostatic infections are prone to exacerbations, at which time, in the presence of other factors which often include a *sudden strain*, an epididymitis may develop.

Causal Relationship in Workmen's Compensation

A urologist is often asked to decide whether a patient with an epididymitis should receive compensation according to our New York Workmen's Compensation Law. Many factors must be considered in rendering such a decision, particularly when a history of strain or indirect trauma is obtained. It would appear logical that some pain, tenderness, and swelling should occur in the scrotum at the time of the strain, yet all these findings may be more apparent several days later. A urine specimen should be examined at the earliest convenient moment for

TABLE 1.—Type of Reactions*

Reaction:	0	1	2	3	4
Number of Cases:	64	17	13	11	3
Percentage:	59	15	12	10	3

somewhat lowers the percentage of headaches. Let us study in greater detail the direct affect of bed rest upon spinal headache.

TABLE 2.—Effect of Bed Rest on Reactions*

To Bed After Spinal	Reaction According to Degree 0	1	2	3	4
Immediately	1		2	5	2
In 2 or 3 hours	10	5	4	3	
In 4 or 5 hours	15	5	3	1	1
In 6 hours	22	5	2	2	
In 8 hours	16	2	2		

Salient features of these tabulations are:

1. Of 10 men who went to bed immediately:
   (*a*) One had no headache, a percentage of 10.
   (*b*) Two had mild headaches.
   (*c*) Five had moderate headaches.
   (*d*) Two had severe headaches. Thus 7 men had moderate or severe headaches, a percentage of 70.
2. Of 20 men who went to bed eight hours later:
   (*a*) Sixteen had no reaction, a percentage of 80.
   (*b*) Two had slight reaction.
   (*c*) Two had mild reaction.
   (*d*) None had either moderate or severe headaches.
3. Of 38 men who went to bed after six hours, only 2 had severe or moderate headaches, a percentage of 5.

Two men had spinals elsewhere—one in the Army and one in a leading university clinic—as well as at our institution. Both went to bed immediately after the previous lumbar puncture and had severe reactions, whereas in our institution one went to bed after eight hours and had a slight reaction, and the other went to bed after four hours and had no reaction.

Thus we observe that bed rest is not only far from useful, but is apparently a harmful procedure in performing diagnostic spinal taps.

Our next step is to discuss causation from a new aspect. Dattner and Thomas[5] believe that neither the leakage theory nor the meningeal theory alone explains the reactions but that both factors may be present and that they both help to produce changes in the hydrodynamics of the central nervous system. They further believe that reflex responses of the vasomotor system have an important part in affecting such alterations. They further express the opinion that in some cases there may actually be an edema of the meninges or of the brain.

The retinal arteries, being the only visible access to intracranial vascular study, should be considered here. Fortunately, postpuncture changes in the ocular mechanism have been recorded by several workers. Levy *et al.*[6] reported 2 cases of papillary edema following lumbar puncture, the causation of which was attributed to the reactional hypertension that may follow the withdrawal of spinal fluid.

Guillain, Alajouanine, and La Grange[7] found congestion of the disk with dilatation of the veins and sometimes even edema in those persons who manifested headache, vomiting, or vertigo following lumbar puncture. They also consider these findings to be a reactional attack of intracranial hypertension, caused by a compensatory hypersecretion of the choroid plexus, subsequent to spinal fluid drainage.

Powell and Smith,[8] in a study to show the relationship between symptoms and fundus changes, found that out of 16 cases with changes in the optic disk 9 had nausea or headache.

In line with the works of these authors, we feel that intracranial hypertension is the cause of the headaches, and we will attempt to point out other factors that may influence the choroid plexus and thus influence intracranial tension.

Work done by Kulchar and King,[9] and also by Schube and Le Drew,[10] revealed enlightening observations that sodium amytal given by mouth before spinal tap cut the percentage of headaches by one-half, as compared with the group that received no medication or received codeine hypodermically.

Emotional reactions vary with sex and with race, as evidenced by the reports of other authors. Davenport[2] found that Puerto Ricans react most severely to spinal taps. Women have been found by various authors to be more reactive than men.

All our patients were institutional cases and were under our observation for at least one year. We were thereby afforded every opportunity to know intimately their emotional reactions and constitutional makeup. There are a number of patients who have many vague aches and pains, who are treated unsuccessfully, and who have a multiplicity of diagnoses. Alvarez[11] has classified these patients as "constitutional inadequates." The commonest symptoms are those of excessive fatigue, lack of energy, and lack of reserve strength. Other common complaints are aches and pains everywhere, nervousness,

* The following code applies to "Reaction" in Tables 1, 2, and 3

0. No headaches
1. Slight headache, usually lasting less than an hour, and appearing within several hours after tap
2. Mild headache.
3. Moderate headache
4. Severe headache, requiring hospitalization flat on back.

A STUDY OF THE HEADACHES FOLLOWING DIAGNOSTIC SPINAL TAPS

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DIAGNOSTIC spinal taps are becoming more and more essential in modern therapy. Unfortunately, this procedure is often followed by headache, a complication that has caused patients to refuse the spinal tap because of the pain or because the reaction may cause the individual to lose time from work. Our study and review of the literature were undertaken to bring some light on this subject.

Without question, it is very beneficial in therapy to understand causation. We, however, are far from knowing the cause of headaches in diagnostic spinal taps. At present, there are two outstanding theories—namely, the meningeal irritation theory and the leakage theory. These theories are inadequate in explaining headaches, and consequently, the prophylactic therapy is inadequate.

The tendency at present is to put the patient to bed after the spinal. The procedure varies in different clinics, and in some clinics bed rest is extended for twenty-four hours. The question is: is this prolonged bed rest essential, and, if not, is it harmful? According to Stokes,[1] even when every precaution is used some degree of reaction occurs in from 15 to 25 per cent of patients when they arise from bed on the day following puncture. Davenport[2] reported an incidence of 32.8 per cent moderate or severe reactions following lumbar punctures performed in Board of Health clinics in New York City. In our opinion, these figures are high, and an improvement should be undertaken.

We observed the shortcomings of the prevailing theory of causation and, as a result, recommend a change in the procedure of performing spinal taps. Many authors on the subject have felt that leakage of the fluid through the opening made by the needle accounted for spinal reactions. Later, study by other authors revealed that leakage is not the primary cause of spinal reactions. It is aptly concluded by Torbert[3] that, despite the wide acceptance of the theory of leakage of cerebrospinal fluid as the cause of the symptoms following lumbar puncture and the advancement of numerous other theories, nothing is known regarding the mechanism responsible for these symptoms.

It behooves us to reconsider the causative theories. If the leakage theory or the meningeal irritation theory were the answer, then a patient should have greater leakage in an upright position after the spinal and thus more severe headache. The same applies to the meningeal irritation theory.

When our theories of causation are incorrect and, as a result, we choose the wrong therapy, our results are difficult to understand. Davenport,[2] in his series, had the patient on the table for ten minutes, then instructed him to go home and go to bed. He remarked that it is surprising that jostling in the subways does not increase the reaction after puncture. Since tradition has it that postpuncture rest is a vital factor in minimizing headache, it should, then, be a source of surprise that the figures for reaction are low for patients who ride the subway immediately after puncture.

Torbert[3] reports that no significant reduction in the number of reactions following puncture is obtained by keeping the patients recumbent in a hospital for twenty-four hours following the operation. In his study, the patient was turned on his back and rested for two hours without a pillow. The usefulness of putting the patient to bed after a spinal is therefore highly doubtful.

Then the question arises, what results will we obtain if we allow patients to be up and about after spinals? The work of Blau[4] is illuminating in that his group had 48 reactions out of 421 cases, a percentage of 11. However, in a group that received no rest either at the clinic or at home there were 5 reactions out of 61 cases; a percentage of 8.

Our study consisted of 108 cases, and it was viewed from several aspects. We performed our spinals at 2:00 P.M., with the patient sitting erect, and did the tap as quickly as possible to avoid agitating the patient. We advised him emphatically to go to bed as late as possible; however, if the patient requested hospitalization, it was granted, and if the patient requested bed rest following the spinal, that was also granted. Since the men in our study are likely to take advantage of any opportunity to avoid work or to make known their complaints, our figures are more significant than they might be if they had been taken from a group of patients who must earn their own livelihood.

Of our 108 cases, 14 had moderate or severe reactions, a percentage of 13. We thus observe that encouragement to patients to stay erect after a spinal does not increase morbidity but

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VITAMINS FOR GRAY HAIR

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RECENT reports contain some indications that certain cases of achromotrichia might be due to a vitamin deficiency. In 1938 several investigators[1,2] reported that rats reared on a diet deficient in certain constituents of the vitamin B complex developed a depigmentation of their fur, a condition which was promptly reversed by addition to the diet of the lacking factors. This "nutritional achromotrichia," as it has been called, attracted considerable attention. Shortly afterward several groups began to investigate the nature of the "anti-gray-hair factor."

One of the constituents of the vitamin B complex whose lack in the diet is capable of causing achromotrichia in animals was identified chemically as pantothenic acid.[3,4,5,6] Ansbacher[7] and Martin[8] a short time later reported that para-aminobenzoic acid had similar effects in animals, and Sieve,[9] who fed doses of 100 mg. daily to adults, reported that after about two months there was a darkening of the hair in all instances. It is still questionable whether para-aminobenzoic acid can be classified as a vitamin.

An editorial which appeared on January 24, 1942, in the *Journal of the American Medical Association* stated: "A diversity of opinion still prevails about the relation between diet and graying of hair in animals. Most investigators have been unable to verify Ansbacher's observation that para-aminobenzoic acid is related in any way with the phenomenon of graying hair in animals. The recent report of Unna, Richards, and Sampson[10] of the Merck Institute states that black rats which are fed a synthetic diet deficient in pantothenic acid become gray in about four to six weeks. Pantothenic acid at a level of 100 micrograms a day will prevent or cure this condition. Para-aminobenzoic acid in these experiments was entirely ineffective.

"Over ten years ago it was observed by a number of biochemists interested in nutritional anemia that black-haired rats became gray on a milk diet. When the anemia was developed on this diet, it was cured by administration of iron and copper, and the color of the hair likewise was restored to normal. Agnes Fay Morgan[1] and others showed in 1938 that a similar condition of gray hair could be produced in animals by a diet that did not contain all factors of the vitamin B complex. Thus came the conviction that vitamins may be concerned with this phenomenon. Even yet the experimental evidence is conflicting.

"Is para-aminobenzoic acid really concerned with the maintenance of normal dark hair color in man? If gray hair is darkened by administration of relatively large amounts of this substance, the effect may be due simply to the excretion into the hair of some paraphenylendiamine-like compound which acts like a dye.

"Further, in view of the paucity of information about the functions of para-aminobenzoic acid, it would be highly desirable to know something about the metabolic history of this chemical in the body before relatively large doses are administered to the patients over comparatively long periods of time. Finally, the evidence in behalf of some definite relationship between intake of vitamins and graying of hair is far more convincing for pantothenic acid than for para-aminobenzoic acid."

We have given para-aminobenzoic acid to 88 persons of different ages and sexes in various stages of achromotrichia. Included in this group were 20 inmates of a New York State penal institution. The patients were given 100mg. tablets 3 or 4 times daily over periods ranging from three to five months with no untoward effects. Each patient had blood pressure reading, urinalyses, and a general endocrine survey.

There were a small number that showed definite changes in the color of their hair. Each of these cases will be described separately.

Case Reports

Case 1.—Mr. G. was a 48-year-old inmate, whose hair had been gray for twenty-two years. On our first examination the hair all over the scalp was practically white. He had been under treatment for a cardiac condition and arthritis. He was given 100 mg. tablets of para-aminobenzoic acid three times daily. There was no change until after three months, at which time there was a definite appearance of black hair and at the end of five months this was so apparent that the appearance of the scalp was iron gray in color. In addition to our own observations, this observation coincided with that of the physician in charge of the institution (Dr. Banay).

Case 2.—Mr. S., an inmate (a lifer) aged 55, was apparently in good health except for an allergic dermatitis probably due to contact with rabbit fur. His hair was yellowish-white in color. After the ingestion of para-aminobenzoic acid in the above dosages for a period of ten weeks there appeared on the temple and occipital region a definite brownish-black discoloration of the hair. The patient stopped taking the para-aminobenzoic acid, and two months later the dark discoloration had practically dis-

faintness, dizziness, indigestion, poor appetite, loss of weight, regurgitation, a sensitive colon, palpitation, clammy hands, cardiac neuroses, slow recovery from any injury or illness, insomnia, "chronic fever," and "weak eyes."

We proceeded to classify all our cases according to the observations of Alvarez. We subdivided the patients into three groups—namely, normal, borderline, and constitutional inadequates. After we had all of the patients placed in their proper groups, we recorded the number and type of reaction of each group.

TABLE 3.—Reaction and Constitutional Makeup*

	Reaction					
	0	1	2	3	4	Total
Normal	48	14	9	5	1	77
Borderline	7	..	1	2	..	10
Constitutionally inadequate	9	3	4	4	2	22

1. Salient features of the normal group include:
   (*a*) Forty-eight out of 77 had no headache, a percentage of 62.
   (*b*) Six out of 77 had a moderate or severe headache, a percentage of 7.
2. Salient features of the constitutionally inadequate group were:
   (*a*) Nine out of 22 had no headache, a percentage of 41.
   (*b*) Six out of 22 had a moderate or severe headache, a percentage of 27.

We continued further study of the constitutionally inadequate group, and we made this additional observation: Of the 4 men who went to bed immediately, all 4 developed a moderate or severe headache.

Summary

It behooves us to reconsider the causation of spinal tap headaches and to suggest a change in the procedure of spinal taps. As we well know, blood pressure and metabolic readings, glandular functions, and the functioning of various and composite units of the sympathetic and parasympathetic nervous systems are markedly influenced by emotions; therefore, the choroid plexus may be influenced in the same fashion. As previously stated, edematous changes have been noted in the fundi of patients who have had headaches following spinal taps. Consequently, we believe that the headaches are due to an increased amount of fluid in the central nervous system. As previously reported by other writers, sedation given before spinal tap entails a lower percentage of post-tap headaches. In our own series, we find a definite correlation between constitutional inadequacy and headaches. We must recognize the fact that a patient lying flat on his back is bound to be very alert to any and all subjective sensations, and therefore we cannot deny that putting a patient to bed after a spinal to avoid a headache is apt to encourage introspection and thereby subject the patient to many troublesome thoughts and sensations. In light of this observation, it has been our procedure to perform the spinal tap with as little fanfare as possible, to encourage the patient to be up and about, and to regard this test as one similar to a routine Wassermann.

Conclusion

The sooner a patient goes to bed after a diagnostic spinal tap, the more apt he is to have a headache and the more likely it is to be a severe headache. The longer a patient is erect after spinal tap, the less apt he is to have a headache, and if one is present, it is likely to be mild.

We believe there are two factors that predominate as to the causative factors of spinal headaches—namely, constitutional makeup and *disturbed psychogenic influences.*

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MODERN PILL BOX

A pill box which dispenses only one pill at a time has been recently patented. One pill at a time pops from a small opening in the molded, pocket-size container, the remainder being inaccessible and protected from dust and other contamination.—*Science News Letter*

LESIONS OF THE ANORECTAL REGION ASSOCIATED WITH SYMPTOMS OF PROSTATISM

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WHILE the term "prostatism" usually calls to mind an elderly man with an obstructing prostate, it is obvious that this syndrome may be, and frequently is, due to a variety of other conditions. Chief among these are the median bar and contracture of the vesical neck, which have given rise to the term "prostatisme sans prostate." This communication, however, will deal primarily with lesions in the lower bowel which have been found to be either directly responsible for the symptoms of prostatism, or to be so closely associated with the syndrome that one is unable to state with any degree of certainty just what role such lesions actually play in the clinical picture.

At the very outset it might be well to differentiate clearly between a case of prostatism associated with and directly due to the presence of an obstructing prostate gland and one associated with an enlarged prostate in which the gland plays no part whatsoever in the causation of symptoms. Diagnostic errors are frequently made, particularly by general surgeons and practitioners when they are presented with patients well within the prostatic age limit who complain of prostatism, and in the course of routine rectal examinations enlarged prostates are found. In such cases one is very apt to conclude without further substantiating evidence that the prostatism is due solely to the enlarged prostate. But in doing so one loses sight of the fact that an enlarged prostate is not necessarily an obstructing one.

Urologists are frequently confronted with patients who have had their prostates removed, but who return complaining of the same symptoms of prostatism which they had prior to operation. In a considerable percentage of such patients, careful cystoscopic and x-ray studies would undoubtedly have obviated such errors. There remains, however, a small group of cases which will elude the most painstaking and carefully performed urologic studies.

It might be well to digress for a moment in order to discuss briefly the mechanism underlying the symptom complex known as "prostatism." It seems to the writer that prostatism is essentially due to two factors: (1) actual mechanical narrowing of the vesical neck or of the prostatic urethra due to the prostate gland; and (2) superimposed spasm of the vesical neck, the detrusor muscle, or the trigone alone or in combination. Frequently, relief of one of these factors will result in the complete subsidence of all symptoms, depending upon the relative degree of obstruction produced by one or the other of these two operating influences. If, for example, the predominating factor is the prostate gland which, by virtue of its size or as a result of the fibrosis of the vesical outlet which it causes, is producing the occlusion, its extirpation by one means or another will result in alleviation of symptoms. This result ensues not solely because of the removal of the obstacle to the free flow of urine from the bladder, but by incidentally relieving the accompanying spasm of the muscles around the vesical neck. On the other hand, should the predominating factor be spasm, removal of the cause underlying the spasm may suffice to give relief. In this latter group of cases, it has been our experience that the enlarged prostate has served only as an incidental factor in the causation of symptoms.

Since it is intended to point out a few snares resulting from lesions in the lower bowel, which are ever present in the path of the urologist, it seems advisable to discuss this subject under two of its broader captions: (1) prostatism primarily due to the colonic lesion; and (2) lesions in the lower bowel which play only a coincidental role or no part at all in the clinical picture.

1. Bowel Lesions Giving Rise to Symptoms of Prostatism

(*a*) *Lesions Around Anus.*—Acutely thrombosed hemorrhoids, painful fissures in ano, and, occasionally, painful fistulae in ano, occurring in elderly men will frequently cause symptoms of vesical neck spasm which can be differentiated from prostatism due to hypertrophy only with difficulty. It is not unusual to find men with prostatism due to prostatic hypertrophy who present large and frequently thrombosed hemorrhoids. So that when one encounters a case in an elderly man in whom the hemorrhoidal lesion is primary, it is obvious that it will require diligent study to ascertain whether the prostate or the thrombosed hemorrhoids are responsible for the symptoms of prostatism. Proper attention directed to the anal lesions will relieve the prostatism only when such lesions are primary.

Case 1.—M. P., aged 47, was seen June 25, 1940, complaining of increased diurnal and nocturnal

appeared, and the hair had reassumed the yellowish-white color.

With the exception of a partially gray-haired negro who seemed to have an increase in the number of black hairs, there was no noticeable change in the color of the hair of the other 17 inmates under treatment.

In the other group of 68 patients, consisting of both men and women, there was only one case in which there was a definite change in the color of the hair. This was Mr. H. C., aged 51. He was in good general health. After two months' treatment there was a darkening of the hair all over the scalp, and on the top and temporal regions the hair actually became black. His moustache also darkened.

Three other patients having both gray hair and vitiligo showed no changes in either after four months' treatment.

In no patient in the entire group of 88 patients was there a complete change from white or gray to the normal, original color of the patient's hair.

Since the increase in pigmentation of the hair occurred in so few cases in the treated group, we are not certain that the para-aminobenzoic acid was the causative factor in the darkening of the hair.

Many of these patients were also given the vitamin B complex mixture that is described below, and those women near the menopausal age received estrogenic hormones in addition.

During the past two years, we have given to more than 200 patients a mixture consisting of an extract of the natural vitamin B complex* derived from high potency brewers' yeast flavored with sodium glutamate. These patients received no other vitamins or medication of any kind. The following is the formula: 10 Gm. (1 heaping teaspoonful) supply; 5.0 mg. thiamine (vitamin B_1); 2.4 mg. riboflavin (vitamin B_2); 22 mg. niacin; $^1/_6$ mg. pyridoxine (vitamin B_6); $^5/_3$ mg. pantothenic acid; $^5/_3$ Gm. protein; 2.4 Gm. carbohydrate; 0.05 Gm. fat; and 2.3 Gm. mineral (ash). While there were no spectacular results regarding changes in the gray-haired individuals, certain patients had a definite darkening of their hair. In others the hair became finer and more silky. In those individuals whose nails were brittle and frequently breaking off, there was a definite strengthening of the nails and loss of brittleness. The darkening of the hair and improvement in the nails may be attributed to an improvement in the general health of the patient rather than to any special vitamin. In discussing the gray-hair problem, many patients were of the opinion that their hair looked less gray when they were in better general health, especially in persons who were prematurely gray.

As pointed out by the *J.A.M.A.*: "Not all people whose hair has turned gray are necessarily suffering from a demonstrable vitamin deficiency. Before further experimental work is done on human beings it would be well to exhaust the possibilities of animal experimentation to ascertain the metabolic function of these substances that are present in yeast."[11]

We have certainly gained the impression from our observations and study of the available literature that the use of pantothenic acid or of para-aminobenzoic acid for achromotrichosis needs further investigation and corroboration before being expounded to the public as a "cure" for gray hair in humans.

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* Natuplex B (Squibb).

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AN EXPENSIVE HABIT

One of our readers sends us a fairly typical example of the overpayment to which patients are subject when physicians order proprietary drugs instead of writing out their own prescriptions.

The correspondent in question had received an advertisement giving the ingredients of a proprietary vitamin product retailing at $7.50 per hundred tablets. Struck by the high cost, he took the formula to his druggist for an estimate. The latter quoted a price of $4.50 per hundred—a saving of 40 per cent.

Most pharmacists will agree that the prescription of preparations under a proprietary name *increases* the costs of medication to the public. Moreover, it tends to reduce the pharmacist to the status of a mere middle man, discouraging the skill of an ancient and honorable profession.

For the *most part*, physicians order proprietary products instead of writing out their prescriptions from habit rather than conviction. It is a habit which should be discarded in view of the excessive costs it imposes upon the public.—*J. Med. Soc. County of N.Y.*

This case deals with a patient who presented enlargement of the prostate which in and by itself was fully capable of giving rise to all the symptoms of prostatism, and in addition an ulcerating carcinoma of the rectum with symptoms apparently only incidental to the prostatic syndrome.

Case 7.—H. Z., aged 68, was seen on July 10, 1941, after having been admitted to the hospital with acute urinary retention. He indicated that he had had symptoms of prostatism of several weeks' duration. The only symptom referable to the gastrointestinal tract was constipation, of which he had complained for several years.

Cystoscopy disclosed an enormously thickened and trabeculated bladder with marked hypertrophy of the median and both lateral lobes of the prostate.

Rectal examination disclosed a markedly enlarged, firm prostate, and nothing else. A two-stage suprapubic prostatectomy was performed, with the removal of an enormous prostate, diagnosed histologically as fibroadenoma. The postoperative convalescence was totally uneventful, and he was discharged from the hospital on August 20, 1941. About four and one-half months later he had an abdomino-perineal resection performed for carcinoma of the rectum.

This case illustrates a patient who was admitted as an emergency with acute retention of urine due to an enormous enlargement of the prostate gland, with no evidence whatsoever to indicate the presence of a malignant lesion of the bowel. It was only following the removal of the prostate that the presence of the rectal lesion was noted. It is obvious that the symptoms of prostatism in this patient were due solely to the hypertrophied prostate.

Case 8.—E. L., aged 58, seen on December 9, 1936, complained of prostatism of seven months' duration and also of constipation and loss of weight. Symptoms had begun seven months earlier, with hesitancy of the urinary stream. Four months before admission he began to have difficulty in voiding, diurnal and nocturnal frequency, dysuria, and perineal pains. Bowels had been constipated, and he had lost 20 pounds during the past seven months.

Cystoscopy revealed a marked intrusion of the middle lobe of the prostate into the vesical lumen, almost completely obliterating the view of the bladder cavity. The roof of the internal sphincter was acutely notched and there was moderate enlargement of the lateral lobes. By rectum the prostate felt moderately enlarged and firmly elastic. Situated directly above the prostate was a hard mass the size of an English walnut.

Sigmoidoscopy disclosed a flat firm papillomatous tumor involving the anterior and lateral walls of the rectum, 6 inches from the anus. Barium enema showed a defect in the region of the rectosigmoid.

So characteristic were the symptoms of prostatism and so confirmatory the urologic evidence of prostatic hypertrophy in this case, that it was only as a result of a carefully performed rectal examination that the carcinoma was palpated. It is our belief that the rectal lesion in this patient played no part in the symptom complex which he presented.

Case 9.—J. C. C., aged 69, seen on February 26, 1936, complained of repeated attacks of urinary retention, dysuria, diurnal and nocturnal urinary frequency, difficulty in starting stream, and constipation.

Symptoms had begun one year previously with difficulty in starting the stream. This became progressively worse until he suffered an attack of complete urinary retention, requiring catheterization. He had lost 15 pounds during the past five years. Although he was moderately constipated, he did not have attacks of diarrhea.

Cystoscopy revealed a slightly trabeculated bladder, with marked enlargement of the middle and both lateral lobes of the prostate. Residual urine measured 3 ounces. Rectal examination disclosed an enormously enlarged and elastic prostate.

A two-stage suprapubic prostatectomy was performed. On the seventh day after operation the patient began having frequent fluid bowel movements, which persisted until he was discharged from the hospital twenty-eight days after the first stage of the operation had been performed.

Eight days after his discharge from the hospital, rectal examination disclosed a large fungating carcinoma on the posterior wall of the rectum, which was reached with difficulty with the examining finger.

This case brings up another example of a coexisting carcinoma of the rectum in a man suffering from severe prostatism due to prostatic hypertrophy. At no time during the course of this man's preoperative urologic study or during the operative or postoperative periods was this lesion even suspected. Certainly its presence played no role in the causation of the prostatic syndrome. Our failure to recognize its presence prior to the removal of the prostate gland might have been due to 2 factors—namely, its high position in the rectum and to the fact that the enormous longitudinal enlargement of the gland made it impossible to reach it with the examining finger.

(*b*) *Symptoms Predominately Rectal:*

Case 10.—M. W., aged 76, seen October 16, 1940, complained of diarrhea, flatulence, blood in the stool, and prostatism of six months' duration. Eight years previously he had had a prostatectomy performed at another institution.

Rectal examination revealed a large cauliflower cancer involving the entire circumference of the rectum at a distance of 2.5 inches from the anus. The diagnosis was confirmed by proctoscopic examination and biopsy.

urinary frequency, dribbling, and difficulty in starting the stream, associated with belching and pyrosis. Fifteen years before he had had a gastrectomy performed for ulcer. Rectal examination disclosed internal hemorrhoids, fissure, and fistula in ano. Following hemorrhoidectomy along with the excision of the fissure and fistula, he made an uneventful recovery with complete disappearance of all urinary symptoms.

Case 2.—J. B., aged 61, seen September 23, 1930, complained of increased diurnal and nocturnal urinary frequency, dribbling, pain on defecation, and bleeding from the rectum. Proctoscopic examination disclosed a fissure in ano with hemorrhoids, for which surgery was performed. Following this he made an uneventful recovery, with complete disappearance of all urinary symptoms.

Cases 1 and 2 both illustrate prostatism due entirely to spasm of the muscles about the vesical neck which resulted from irritative lesions of the rectum and anus. Appropriate treatment directed to these causes led to complete relief of symptoms.

(*b*) *Lesions in Rectum and Colon.*—Cancers involving the lower portion of the rectum, and particularly the anterior wall of the rectum, frequently give rise to symptoms of prostatism, and occasionally lead to complete urinary retention.

Case 3.—S. R., aged 64, was admitted to the hospital on the night of April 28, 1941, with an attack of acute urinary retention. He stated that for the past few months he was troubled with diurnal and nocturnal urinary frequency. During this period he had lost 25 pounds in weight. Only after careful questioning was it ascertained that he had occasional bouts of diarrhea alternating with periods of constipation.

Physical examination disclosed a thin, cachectic, chronically ill patient who presented no outstanding signs. Blood pressure was 170/90. The prostate, as felt per rectum, did not appear particularly enlarged or hard.

Cystoscopy disclosed marked contracture of the vesical neck, with a well-defined median bar. The lateral lobes were not enlarged. On the anterior wall of the bladder near the vault there was a small area where the mucosa appeared reddened and edematous. This finding led us to believe that we might be dealing with a contact inflammation resulting from some intra-abdominal lesion lying adjacent to the bladder. It was fairly certain that the genitourinary findings did not fully explain the presenting clinical picture, particularly the general cachectic appearance of the patient, and the complete urinary retention.

Sigmoidoscopy disclosed a tumor involving the anterior wall of the rectum, situated 4.5 inches from the anus. Biopsy showed adenocarcinoma of the rectum.

Exploratory laparotomy performed May 13, 1941, revealed a large mass about the size of an orange involving the sigmoid flexure, upper rectum, one loop of small intestine, and the posterior vesical wall. A metastatic nodule was present in the right lobe of the liver. A loop colostomy was performed above the tumor. Following this, all urinary symptoms disappeared, indicating thereby that the urinary retention was primarily due to spasm rather than to mechanical obstruction of the vesical neck by the prostate gland.

Case 4.—S. McI., aged 59, was first seen July 14, 1930, complaining of increased diurnal and nocturnal urinary frequency, dribbling, difficulty in starting stream, and pyuria, of eight months' duration.

The physical examination was essentially negative. On rectal examination the prostate felt small and elastic.

Cystoscopy disclosed a thickened, trabeculated bladder with a well-defined median bar and contracture of the vesical neck. The lateral lobes of the prostate were not involved.

On July 29, 1930, the bar was excised with the Collings electrotome, and the patient was discharged from the hospital on August 1. He returned October 3, 1930, and stated that since leaving the hospital he had noticed rectal irritability which had become more pronounced during the preceding five days. Two months previously he had noted blood in the stool, which persisted for two days but did not recur. There was no diarrhea, constipation, or loss of weight. Digital rectal examination revealed a hard, annular carcinoma involving most of the anterior wall of the rectum, just barely palpable to the examining finger.

The symptoms of prostatism presented by this patient were undoubtedly due to spasm induced by the carcinoma of the rectum, which had been overlooked at the time of his first examination.

Case 5.—H. K., aged 58, was seen May 7, 1928, complaining of difficulty in urinating, frequency of urination, and dysuria. On rectal examination an ulcerating carcinoma was found involving the lower anterior wall of the rectum. The prostate was not enlarged.

2. Carcinoma of the Rectum Associated with Prostatic Hypertrophy

(*a*) *Symptoms Predominately Prostatic:*

Case 6.—M. H., aged 64, was first seen April 5, 1938, complaining of prostatism of three months' duration, constipation, pain on defecation, and blood-stained stools. The latter symptoms appeared to him to be only incidental to the prostatic syndrome.

Cystoscopy revealed a thickened and trabeculated bladder with marked hypertrophy of the median and both lateral lobes of the prostate.

Rectal examination disclosed not only marked enlargement of the prostate, but also an ulcerating carcinoma of the rectum.

The treatment in this case consisted of a two-stage suprapubic prostatectomy, followed by a Mummary resection of the rectum for carcinoma.

proctoscopic or sigmoidoscopic investigation. Should this fail to establish the presence of a tumor, it may be necessary to fluoroscope the colon with a barium enema.

It is even more important to carry out such collateral examinations upon men complaining of prostatism but presenting inconclusive evidence of prostatic obstruction following careful urologic study. In this group, especially among younger men, one should look with particular care for painful fissures in ano and small thrombosed hemorrhoids.

In patients with markedly enlarged and obstructing prostates, who give preoperative symptoms in any way suggestive of rectal irritability, and when preoperative studies have failed to disclose the presence of a rectal lesion, it is always advisable to repeat such studies within a reasonable period following the removal of the prostate.

The problem of proper handling of patients who present a combination of lesions involving the prostate and the terminal colon is one which depends upon a variety of factors. When the prostatic involvement is of secondary importance, appropriate treatment of the anorectal lesion will, in the vast majority of instances, suffice to relieve all symptoms of prostatism. When the prostate plays an equal role with the anorectal lesion in the production of symptoms, it has been our custom to direct attention first to the prostate, and later to the rectum. And finally, where the prostate is solely responsible for the symptoms of prostatism, and the anorectal lesion is an accompanying condition, unless there is the possibility of a threatening intestinal obstruction, we direct our attention first to the prostate, and later to the intestinal lesion. Should the intestinal lesion give rise to the more urgent and distressing symptoms, and particularly should there be any indication of an impending intestinal obstruction, it is better judgment to colostomize the patient before attending to the prostatic obstruction. It may, under certain circumstances, be necessary to introduce a temporary indwelling urethral catheter shortly after performing a colostomy, or to perform a suprapubic cystotomy if it is deemed inadvisable to delay the direct removal of the prostatic obstruction.

In regard to the type of prostate operation to be employed in this group of cases, it seems to us that wherever possible the transurethral resection is the method of choice, especially when renal function is not materially impaired. In uremic and suburemic states, suprapubic cystotomy is advisable regardless of whether or not the prostate is to be subsequently removed by enucleation or by the transurethral resection. It is obvious that in cases in which it is deemed prudent to perform a two-stage suprapubic prostatectomy, this procedure must take precedence over the extirpation of the rectal carcinoma.

Summary and Conclusions

Prostatism may be due to lesions in the anorectal region alone or in combination with obstructive hypertrophic prostates. When it results primarily from anorectal conditions, it is usually due to spasm of the vesical neck following irritation of the anterior rectal wall. Histories taken from prostatics must include careful interrogation regarding the bowel habits of these patients. In all prostatics carefully performed rectal examinations are imperative. Where symptoms point to the possibility of involvement of the rectum or anus, digital examination must be supplemented by proctoscopic, and, at times, x-ray studies of the colon. When symptoms suggesting rectal irritation are present, and when preoperative studies have failed to disclose any evidence of rectal pathology, it is essential that a careful rectal examination be made following the removal of the obstructing prostate. Appropriate treatment to an obstructing prostate should usually precede treatment for the anorectal pathology, unless intestinal symptoms strongly predominate. The procedure of choice, in dealing with the prostate in this type of case, is transurethral resection.

FISHING EQUIPMENT NEEDED BY NAVY

Hook, line, and sinker—and all the rest of your fishing equipment are needed to help save the lives of our fighting men. An appeal has gone out from the Medical and Surgical Relief Committee of America.

Mrs. Huttleson Rogers, executive chairman of the committee, urges that all fishermen, sporting goods dealers, and fishing clubs send her organization their spare or discarded fishing tackle. They are needed to help equip special emergency medical kits earmarked for the U.S. Coast Guard and the U.S. Navy.

A simple fishing outfit, for use in time of disaster, is now being included in the portable kit along with essential drugs and emergency surgical instruments. Already the lives of U.S. survivors of torpedoed boats have been saved by catching fish, which are not only valuable for food, but also contain water.

This illustrates a case of carcinoma of the rectum, in which the symptoms were primarily rectal in origin, and only secondarily gave rise to symptoms of prostatism.

Case 11.—E. S., aged 53, seen September 25, 1941, complained of irregular bowel movements and blood in the stools. During the preceding year he had noted increasing constipation, followed by bouts of diarrhea. Stools were frequently blood-stained. He had lost 20 pounds during the past two years. He also noted hesitancy of the urinary stream and increased diurnal and nocturnal urinary frequency.

Rectal examination revealed a large fungating carcinoma involving the anterior rectal wall, situated 3 inches from the anus. The diagnosis of carcinoma was confirmed by removing a section of the tumor for biopsy through the proctoscope.

This is another example of a patient presenting clear-cut symptoms of rectal carcinoma, along with symptoms of prostatism, the latter being definitely incidental and in no way due to the enlarged prostate.

Comment

Prostatism as a syndrome is most frequently due to interference with the vesical outlet by an obstructing prostate gland. There is, however, a small group of patients consisting of men in the prostatic age period who harbor lesions in the anorectal region of the colon among whom prostatism may be either the chief complaint or only a secondary syndrome. In this group the prostate may be pathologic or normal. For example, a man may present a history of prostatism, but on rectal and cystoscopic examination one may find no involvement of the bladder neck or prostatic urethra; or the changes may be so slight that an existing abnormality present in the prostate could not possibly account for the symptoms. Such an examination may reveal the presence of a painful fissure in ano, acutely thrombosed hemorrhoids, or a carcinoma involving the anterior wall of the rectum or lower colon. Each of these lesions, in itself is sufficient to cause symptoms of prostatism, owing to its tendency to initiate spasm of the vesical neck.

Then again, these same lesions of the rectum or anus may be present in men who actually do have some degree of prostatic hypertrophy. Yet, in these patients, careful cystoscopic studies fail to indicate that these hypertrophic glands exert sufficient occlusion of the vesical neck or prostatic urethra to initiate prostatism, indicating thereby that the prostatism is due solely to the irritating influence of the anorectal lesion and not to the inert prostate.

There is still another group of patients who present the prostatic syndrome, with both a lesion of the anus or rectum and an enlarged prostate which exerts an appreciable degree of obstruction to the bladder outlet. In this group the symptoms of prostatism may be entirely or only partially due to the enlarged prostate. When they are entirely due to the prostate, the accompanying rectal lesion is inert as a symptom producer. However, when symptoms are only partially due to the influence of the prostate, the anorectal lesion may accentuate them by virtue of its irritative effect upon the vesical neck.

Finally, we see patients who present clear-cut syndromes which point to involvement of the lower bowel segment, but who, on careful questioning, will also present symptoms of prostatism. On examining such patients both rectally and cystoscopically, one may find the prostate either enlarged or perfectly normal.

It has been our lot to learn through hard and often bitter experience that on taking a history of a prostatic one should question carefully and thoroughly about the bowel habits of the patient. It is particularly important to note whether or not there has occurred any change in the character of the stools, the number of stools per day, and the presence or absence of blood in the stools within the past six or eight months. Careful interrogation should also be carried out relative to any recent weight loss. The not-too-frequent association of anorectal lesions, particularly carcinoma of the rectum, with hypertrophic prostates makes it incumbent upon the urologist to be especially alert to the possible existence of this combination, and to attempt to eliminate the possibility of such a lesion before instituting treatment for the prostate.

We have often found it possible to detect lesions situated high up in the rectum by a properly carried out digital rectal examination. The patient, lying in supine position, is asked to flex his thighs upon the abdomen and then to flex the knees. He is then asked to draw his flexed knees, with his hands, up toward the chin. The examining finger is carefully introduced into the rectum as far as it will go, and the patient is then asked to strain as in moving the bowels. In this way it is often possible, by carefully sweeping the examining finger all around the circumference of the rectal wall, to pick up a tumor which might otherwise have eluded the examiner. However, in cases in which the prostate is particularly enlarged posteriorly, it is often impossible to reach far enough above its upper border to examine fully this segment of bowel for tumor. To eliminate the risk of overlooking such a lesion, particularly when symptoms point to the possibility of its existence, it is essential to carry out appropriate

year later she noticed recurrence, and five years later she had an operation for a large toxic intrathoracic goiter. She died on the seventh day with symptoms of storm.

9. Man, aged 67. Large intrathoracic goiter. Thyrocardiac. Pulse 164, very irregular. After three months, his pulse was 120, and still irregular, but he was walking between 4 and 5 miles. He died after four years from heart disease.

10. Woman, aged 61. Large nodular goiter. Thyrocardiac. Pulse 120; heart enlarged; valvular disease. After three months she felt very well, her pulse was 92, heart less enlarged. She was in good health for amost ten years, then was sick for two months and died. The exact cause was unknown.

On analyzing these 10 subsequent deaths we find that thyroidectomy apparently improved or prolonged life in five, had no effect in two, a doubtful effect in two, and seemed to make the patient worse in one.

The average age of these 11 patients five years after their operation would have been 43.8 years. At this age, according to *Insurance Tables of Life Expectancy*, 1.077 in every 100 are expected to die annually, or 10.77 in ten years. Our actual number was 11, or just about the average. But it must be remembered that we started out with 100 sick patients, probably none of them insurable. Some of those operated upon—for example, the one with cancer, or some of the thyrocardiacs—would have died without operation, and a number of them would have died sooner without operation. Therefore, we are safe in concluding that life expectancy is increased by thyroidectomy in proper cases.

The influence of the thyroid on blood pressure is variously estimated. Many physicians believe that goiter, both toxic and nontoxic, causes hypertension and that removal of the goiter, therefore, cures it. This we did not find to be true in our series.

We did find that after three months the pressure went down slightly in 30 out of 52 cases, but after ten years it had gone up in 80 per cent of the cases.

There were 14 patients alive after ten years whose systolic pressure before operation had been over 150 and whom we may arbitrarily consider as suffering from hypertension. The average systolic pressure of these cases before operation was 157.2; after three months it was 149.5, and after ten years, 175.4. Of the patients who died, one had a pressure of 198 before operation, 220 after four years, and died after eight years of nephritis; a second had a pressure of 196 before and 180 after three months; a third had 170 before and died after two months; and a fourth, 150 before, with 152 after one year.

We would conclude from these figures, therefore, that thyroidectomy has little effect on blood pressure, except a slight temporary improvement, and is no cure for hypertension. And the corollary to that would be that hypertension is not caused, but may be somewhat increased, by hyperthyroidism.

These findings agree with Bisgard, who recently made a similar study.[2]

Thyroidectomy had a very definite effect on the heartrate. Of the 70 cases examined, the average rate before operation was 94.5, while after ten years it was 79.5. There were 23 cases that had a rate of 100 or over before operation. Of these only 4 continued to have a rate over 100 after ten years.

Of the 60 patients who were asked whether there was a recurrence or persistence of the fast pulse or nervousness or both that they had had before operation, 53 answered no and 7 yes.

Of the 14 patients who had definite organic heart disease before their thyroidectomy, 11 were clinically cured, and 3 improved after ten years. This does not include those who died.

In the matter of weight, 57 weighed more, 7 weighed less, and 2 weighed the same after ten years. But there was no excessive gain in any case, nor did any patient who was thin before operation become definitely obese.

Of 32 married women under 40 in this group, 8 became pregnant. Two had 3 children, 3 had 2 children, and 3 had one child each. One of the children in the first group was very obese, of the Fröhlich syndrome type, but the child's two sisters were normal and their mother showed no signs of hypothyroidism.

In estimating recurrences of goiter, we counted all palpable enlargements of the thyroid residue, the majority of which were apparently not growing or causing symptoms. In 70 cases, there were 7 recurrences. A few of them required reoperation, one of them resulting in death, as reported among the subsequent deaths.

Examination of the scar in 70 cases showed that 62 were perfectly satisfactory, 4 were slightly thickened or widened, one had a depression from a temporary tracheotomy tube, 2 showed adherence of part of the scar to deeper parts, and one had a severe x-ray burn from treatment before operation. In no case did a patient accept the offer of a minor plastic operation to improve the scar.

All the patients examined were asked the question, "Do you think that your operation was successful?" Sixty-eight replied that they were satisfied and only 2 that they were not, in spite of the 7 recurrences.

Then each was questioned about the presence of the most common hyperthyroid or hypothyroid symptoms at the time of examination Thirty said no symptoms were then present

THYROIDECTOMIZED PATIENTS AFTER TEN YEARS

Analysis of 100 Consecutive Cases

ALFRED H. NOEHREN, M.D., Buffalo

REMOVAL of most of an organ, like the thyroid gland, that has a very definite effect on the metabolism and other functions of the body is bound to cause important changes in the well-being of that body. It is important that we know before undertaking such an operation whether these changes are beneficial or not, whether they are temporary or permanent, and what the final result will be. As Hertzler says, "Statistics can be of value only when the entire subsequent life span of the individual is taken into account."[1]

In order to determine what the effect of a thyroidectomy is on the subsequent life of the patient, we made an exhaustive study of the fate of 100 consecutive thyroidectomized patients operated upon before June 1, 1932. We were successful in obtaining reliable information about 87 of them and in personally examining 78½ per cent of the survivors. This is shown in Table 1.

TABLE 1.—100 CONSECUTIVE THYROIDECTOMIZED PATIENTS OPERATED UPON TEN YEARS AGO

Operative death	1
.....	10
.....	70
.....	7
.....	12
	100

The 88 cases of which we have information were classified at the time of operation as follows:

Nontoxic diffuse goiter	2
Toxic diffuse goiter	20
Nontoxic nodular goiter	47
Toxic nodular goiter	19
	88

We did not wish this to be a purely statistical study or to be guided merely by laboratory tests. Among other things we tried to find the answer to two questions: (1) what happens to these patients clinically, and (2) are some of our accepted concepts about thyroid patients borne out by experience?

In our study, we not only made a physical examination of each patient, but also questioned her about her own reactions to the operation. We do not consider any operation completely successful unless the patient feels that it was successful.

Before giving the results in our surviving patients, we will first briefly analyze the cases of those who have died during the ten years.

The operative death was in a woman 48 years old, who had a toxic diffuse goiter. Her pulse rate was 148 to 160 and she had a basal metabolic rate of plus 51. She was prepared in the hospital for nine days. Her pulse dropped to 112, and she started to gain weight and was calm. She died on the fourth postoperative day from a thyroid storm. The specimen showed marked epithelial hyperplasia. We believe that her toxicity was underestimated and that added experience would prevent such an occurrence today, for we have had no definite thyroid storm in a long time.

Subsequent deaths:

1. Woman, aged 28. Nontoxic cyst, the size of a coconut. The patient was in perfect health when seen three months postoperatively. She died two years later; cause unknown.

2. Woman, aged 54. Toxic nodule, the size of an orange. She died nine years later of carcinoma of the stomach. She was in good health until six weeks before death.

3. Woman, aged 55. Thyrocardiac. Blood pressure, 198/110. Three months later her blood pressure was 226/150. She died after eight years of cardiorenal disease.

4. Woman, aged 45. Slightly toxic nodule the size of an orange. Malignancy was not suspected, although a 20-year-old goiter suddenly started to grow five months previous to operation. Three months later there was extensive recurrence and dyspnea. The patient died after eight months of recurrences.

5. Woman, aged 46. Toxic diffuse goiter; pulse 126; basal metabolism, plus 68. After three months, her pulse was 124, and her basal metabolism was plus 25. Hysterectomy for fibroid was performed ten months later. Death resulted from embolus.

6. Man, aged 43. Toxic nodular goiter. Thyrocardiac. Basal metabolism, plus 51. Pulse became irregular on the second day after operation and remained so. One year later it was still irregular, with a basal metabolism of plus 19. He died suddenly five years later.

7. Woman, aged 51. Toxic diffuse goiter. Pulse 120; basal metabolism, plus 55. Pulse occasionally irregular. After operation, there were two attacks of fibrillation which were controlled with quinidine. The patient went home on the sixth day but died suddenly after two months.

8. Woman, aged 54. Large nontoxic nodule. There was no recurrence after three months. One

Case Report

INSULIN RESISTANCE

Report of Clinical and Experimental Findings in an Insulin-Refractory Case of Diabetes Mellitus

HERBERT SCHREIER, M.D., New York City

MARTIN and Martin[1] have presented a critical survey of the literature on insulin resistance. Out of 26 cases collected, 12 patients died despite therapy. They reported their own case of a previously mild diabetic, who presented allergic reactions to insulin and thereafter became insulin-resistant and died in diabetic acidosis despite enormous doses of insulin.

We are presenting a similar case, which we observed to be insulin-refractory from March, 1942, to July 27, 1942.

Case Report

Mrs. R. G., a woman 58 years old, was first seen in the Diabetic Clinic of Gouverneur Hospital on May 10, 1940. A neighborhood pharmacist had had her urine examined, and it was found to contain sugar. The chief complaints were: polyuria, polydipsia, and general weakness. Her maximum weight was 210 pounds, with a loss of 30 pounds in the past year.

Past History.—Hysterectomy, bilateral oophorectomy, an[illegible] performed when she was [illegible] nopause. There was no [illegible]s. Physical examination showed her to be obese, without any apparent endocrine stigmata. The heart sounds were of good quality, without murmurs, R.S.R. The lungs were clear. The blood pressure was 130/80.

Laboratory Data.—Fasting blood sugar was 250 mg. The urine showed 2 per cent glucose in 2,000 cc. of a twenty-four-hour specimen, with no acetone.

The patient did not return to the clinic until March, 1942, and from 1940 to 1942 she had had no medical attention. Her son admitted that she considered herself well and did not want to subject herself to medical management. She was unusually hungry at all times, consuming enormous amounts of food although she continued to lose weight. She had lost over 40 pounds in the course of these two years, a total weight loss of 70 pounds. On examination the urine showed a 4 plus reaction for sugar and a 4 plus reaction for acetone. She was hospitalized at Gouvenreur Hospital on March 7, 1942, on Dr. S. N. Weber's service, and was put on insulin for the first time. On the second day of hospitalization, the house physician noted an urticarial rash over the patient's body. A dose of 0.5 cc. of adrenalin was given, with immediate disappearance of the urticaria. The rash recurred in milder form, but disappeared again after a few days. The patient was discharged March 18, 1942, acetone-free but glycosuric. By this time she was more cooperative and appeared at the clinic at regular weekly intervals. Glycosuria in large amounts persisted despite high doses of protamine zinc insulin (70 units) and variable amounts of regular insulin (up to 50 units).

On April 10, she was readmitted to Gouverneur Hospital because of recurrence of ketonuria. On this second admission, she had 4 plus sugar and 4 plus acetone, and also showed a marked unilateral conjunctivitis, thought to be of allergic origin. The patient continued to spill sugar and acetone for about ten days despite routine management directed toward the establishment of electrolyte balance, large doses of insulin, and glucose. She remained conscious and at no time lapsed into coma. When over 400 units of insulin were given daily and large amounts—over 100 Gm.—of sugar were excreted in the urine, we undertook the study of: (1) sugar tolerance, (2) sugar and insulin tolerance, and (3) insulin tolerance.

(In the past three years, in cooperation with Dr. Fabrykant, we have subjected difficult diabetics to these tests in order to study: (1) sugar tolerance; (2) the effect of insulin on the blood sugars, (3) the effect of insulin on the amount of glycosuria, and (4) the detection of persistent glycosuria with normal blood sugar levels, which we found in some diabetics.)

The results of these tests in the patient were as follows:

Time	100 Gm. Glucose	100 Gm. Glucose Plus 50 Units of Insulin	Insulin Only, 50 Units of Regular Insulin
Fasting	344	310	344
½ hour	377	341	370
1 hour	380	345	390
2 hours	350	426	360
3 hours	339	417	360

The amounts of glycosuria during these tests remained within the same range, with insulin having no effect on either the blood sugar or the amount of sugar excreted in the urine.

By this time, we concluded that we were dealing with a case of insulin resistance of unknown cause. The patient continued to take large doses of insulin and continued to spill sugar and acetone. The acetone disappeared while the patient had six feedings with 50 units of regular insulin at each feeding; yet she continued to excrete large amounts of sugar in the urine. On May 21, she was discharged from the hospital with a diet of carbohydrate, 200 Gm.; of fat, 80 Gm.; of protein, 80 Gm.; with 60 units of insulin before each meal. She was closely watched at the clinic, and traces to 4 plus acetone began to appear in her urine. At this time a research bed was reserved at the New York Hospital.

Physical Examination.—On admission to the New York Hospital the patient was found to be moderately well developed, poorly nourished, showing obvious signs of great and recent weight loss. Intraocular tension was apparently normal, fundi were normal, and the tongue moist, showing no evidence of

Read at the Clinical and Pathological Conference at Gouverneur Hospital, New York City, November 19, 1942.

Chief of the Diabetic Clinic and assistant visiting physician, Gouverneur Hospital.

For the remaining 40, Table 2 shows the frequency of these symptoms.

TABLE 2.—Number of Patients Showing Symptoms After Ten Years

Nervousness	22	Weakness	6
Restlessness	10	Tremor of hands	5
Subjective heat	9	Swelling of face	1
Increased sweating	9	Drowsiness	1
Dyspnea	8	Falling of hair	1
Feeling of cold	6		

Previous exophthalmos had disappeared in 2, become less in 5, and become worse in none. Although we know that some cases of exophthalmos get worse after thyroidectomy, there were none in this series that did.

There was no definite case of myxedema in all the 70 patients examined.

The final question asked was, "How are you feeling today?'

The answers were as follows:

Very well	22
Good	42
Fair	4
Poor	2

Of the 64 patients who felt well or very well, 56 attributed their good health to their thyroidectomy; 2 were uncertain, one of these giving a subsequent x-ray treatment equal credit; 4 gave partial credit to the operation, and 2 none at all.

Analysis of the 4 patients who felt only fair showed that in 2 the poor health was due to recurrences. One of these patients has since been reoperated upon and now feels very well. The third patient is the only one in all our experience with serious permanent hypoparathyroid symptoms. She is still subject to spasms, which make her breathing difficult at times. Her Chvostek and Trousseau signs are positive, but there are no corneal symptoms. The fourth patient said that she "was a mess" before the operation and that while she is not in perfect health yet, she is much better than she was before.

Of the 2 who said their health is poor, one is suffering from gallstones and the other has had subsequent severe spinal complications, neither of which has any apparent relation to the thyroidectomy.

Conclusions

1. Lives are prolonged by thyroidectomy.
2. Thyroidectomy restores goiter patients to health.
3. Goiter increases hypertension, but does not cause it.
4. Thyroidectomy causes temporary improvement in hypertension in goiter patients, but does not cure it.
5. Cardiovascular cases that are caused or intensified by goiter—so-called thyrocardiacs—are definitely cured or improved by thyroidectomy.
6. Thyroidectomy has a tendency to increase weight to a moderate degree.
7. Thyroidectomy does not interfere with pregnancy.
8. Some recurrence of goiter after subtotal thyroidectomy may be expected in a little less than 10 per cent of cases.
9. From a cosmetic standpoint, the scar resulting from a thyroidectomy is of negligible importance.
10. Patients consider their thyroidectomy successful in over 97 per cent of cases.
11. Of the many symptoms of hyper- or hypothyroidism before operation surprisingly few are present ten years after the thyroidectomy.
12. Of 70 cases examined ten years after thyroidectomy, 64 are feeling well or very well today, and of the remaining 6 only 3 blame the thyroid or the operation for their ill health.
13. Of the 64 patients who are feeling well, 57 credit the operation with their well-being, 4 give it part of the credit, 2 are uncertain, and only one gives no credit to the operation.
14. Until better and more specific treatment for diseases of the thyroid gland is discovered, subtotal thyroidectomy in proper cases is amply justified by its ten-year results.

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$1,000 BACTERIOLOGY PRIZE

The $1,000 prize and gold medal given annually by the Society of American Bacteriologists to an American bacteriologist under 36 years of age who has made an outstanding contribution to knowledge of the subject during the year were awarded to Dr. Harlan G. Wood, research assistant professor of bacteriology at Iowa State College.

Work tending to show that carbon dioxide acts as a vitamin-like substance necessary in the life of plants and animals won the award for Dr. Wood.

The award is presented at the annual meeting of the Society of American Bacteriologists, but as this was canceled this year, the award was presented to Dr. Wood at a joint meeting at Iowa State College of local chapters of the Society and of Sigma Xi.—*Science News Letter*

Case Report

INSULIN RESISTANCE

Report of Clinical and Experimental Findings in an Insulin-Refractory Case of Diabetes Mellitus

HERBERT SCHREIER, M.D., New York City

MARTIN and Martin[1] have presented a critical survey of the literature on insulin resistance. Out of 26 cases collected, 12 patients died despite therapy. They reported their own case of a previously mild diabetic, who presented allergic reactions to insulin and thereafter became insulin-resistant and died in diabetic acidosis despite enormous doses of insulin.

We are presenting a similar case, which we observed to be insulin-refractory from March, 1942, to July 27, 1942.

Case Report

Mrs. R. G., a woman 58 years old, was first seen in the Diabetic Clinic of Gouverneur Hospital on May 10, 1940. A neighborhood pharmacist had had her urine examined, and it was found to contain sugar. The chief complaints were: polyuria, polydipsia, and general weakness. Her maximum weight was 210 pounds, with a loss of 30 pounds in the past year.

Past History.—Hysterectomy, bilateral oophorectomy, and salpingectomy had been performed when she was 38, followed by surgical menopause. There was no family history of diabetes. Physical examination showed her to be obese, without any apparent endocrine stigmata. The heart sounds were of good quality, without murmurs, R.S.R. The lungs were clear. The blood pressure was 130/80.

Laboratory Data.—Fasting blood sugar was 250 mg. The urine showed 2 per cent glucose in 2,000 cc. of a twenty-four-hour specimen, with no acetone.

The patient did not return to the clinic until March, 1942, and from 1940 to 1942 she had had no medical attention. Her son admitted that she considered herself well and did not want to subject herself to medical management. She was unusually hungry at all times, consuming enormous amounts of food although she continued to lose weight. She had lost over 40 pounds in the course of these two years, a total weight loss of 70 pounds. On examination the urine showed a 4 plus reaction for sugar and a 4 plus reaction for acetone. She was hospitalized at Gouvenreur Hospital on March 7, 1942, on Dr. S. N. Weber's service, and was put on insulin for the first time. On the second day of hospitalization, the house physician noted an urticarial rash over the patient's body. A dose of 0.5 cc. of adrenalin was given, with immediate disappearance of the urticaria. The rash recurred in milder form, but disappeared again after a few days. The patient was discharged March 18, 1942, acetone-free but glycosuric. By this time she was more cooperative and appeared at the clinic at regular weekly intervals. Glycosuria in large amounts persisted despite high doses of protamine zinc insulin (70 units) and variable amounts of regular insulin (up to 50 units).

On April 10, she was readmitted to Gouverneur Hospital because of recurrence of ketonuria. On this second admission, she had 4 plus sugar and 4 plus acetone, and also showed a marked unilateral conjunctivitis, thought to be of allergic origin. The patient continued to spill sugar and acetone for about ten days despite routine management directed toward the establishment of electrolyte balance, large doses of insulin, and glucose. She remained conscious and at no time lapsed into coma. When over 400 units of insulin were given daily and large amounts—over 100 Gm.—of sugar were excreted in the urine, we undertook the study of: (1) sugar tolerance, (2) sugar and insulin tolerance, and (3) insulin tolerance.

(In the past three years, in cooperation with Dr. Fabrykant, we have subjected difficult diabetics to these tests in order to study: (1) sugar tolerance; (2) the effect of insulin on the blood sugars, (3) the effect of insulin on the amount of glycosuria, and (4) the detection of persistent glycosuria with normal blood sugar levels, which we found in some diabetics.)

The results of these tests in the patient were as follows:

Time	100 Gm. Glucose	100 Gm. Glucose Plus 50 Units of Insulin	Insulin Only, 50 Units of Regular Insulin
Fasting	344	310	344
½ hour	377	341	370
1 hour	380	345	390
2 hours	350	426	360
3 hours	339	417	360

The amounts of glycosuria during these tests remained within the same range, with insulin having no effect on either the blood sugar or the amount of sugar excreted in the urine.

By this time, we concluded that we were dealing with a case of insulin resistance of unknown cause. The patient continued to take large doses of insulin and continued to spill sugar and acetone. The acetone disappeared while the patient had six feedings with 50 units of regular insulin at each feeding; yet she continued to excrete large amounts of sugar in the urine. On May 21, she was discharged from the hospital with a diet of carbohydrate, 200 Gm.; of fat, 80 Gm.; of protein, 80 Gm.; with 60 units of insulin before each meal. She was closely watched at the clinic, and traces to 4 plus acetone began to appear in her urine. At this time a research bed was reserved at the New York Hospital.

Physical Examination.—On admission to the New York Hospital the patient was found to be moderately well developed, poorly nourished, showing obvious signs of great and recent weight loss. Intraocular tension was apparently normal, fundi were normal, and the tongue moist, showing no evidence of

Read at the Clinical and Pathological Conference at Gouverneur Hospital, New York City, November 19, 1942.

Chief of the Diabetic Clinic and assistant visiting physician, Gouverneur Hospital.

dehydration. Her skin was loose and dry. The lungs were normal; the blood pressure was 135/84; the liver was not palpated on admission but four days later it was definitely palpable 4 fingerbreadths below the costal margin.

Laboratory Data.—Urine on admission showed: *specific gravity of 1.027; acid; sugar, 4 plus;* acetone, 4 plus; no red blood cells; and no white blood cells. During the hospital stay, the urinary sugar remained 4 plus except for a few brief reductions to 1 plus or 2 plus. Urinary acetone disappeared after eighteen hours' treatment, reappeared on the fifth hospital day, and reappeared again on the seventh hospital day, reappearing finally on the tenth hospital day to remain at 4 plus until death.

Serology.—The Kline test was negative.

Blood Chemistry.—On admission examination showed a sugar content of 454 mg. On two occasions, the fasting blood sugar fell as low as 220 mg., although all other blood sugars taken during the hospital stay were over 500. Postmortem blood sugar was 937 mg. Blood carbon dioxide combining power, on admission, was 49 volumes per cent; twenty-four hours later it was 36 volumes per cent. A blood culture was negative. A flat plate of the abdomen was normal save for an enlarged liver. Skull plates showed a normal skull.

The patient was given 585 units of insulin on the day of admission, variable doses up to 900 units of insulin on the tenth day, and 1,310 units on the day on which dehydration, acidosis, and coma terminated the clinical course. She was given large amounts of fluids, from 1,900 cc. to 4,300 cc., and large amounts of carbohydrates—400 Gm., as an average. While insulin was given in large amounts on an hourly basis and the patient was comfortable and not spilling acetone, blood sugar levels showed a rising tendency instead of a declining one. On the thirteenth day of her stay at the New York Hospital, where she received individual care and study, the patient slipped deeper and deeper into acidotic coma. She expired with classical signs of diabetic acidosis and dehydration. Her breath smelled strongly of acetone, her skin was exceedingly dry, and her tongue was dry and coated. Her eyeballs were soft and sunken and her respiration deep and labored. She was in complete coma. Death was ascribed to diabetic acidosis.

Autopsy Findings.—The autopsy findings showed hyaline degeneration of the islands of Langerhans and fatty degeneration of the liver.

Experimental Work.—Experimental work done by Dr. E. Tolstoi is the most significant of all findings in this case. The following is the report of Dr. Tolstoi:

Problem: The patient entered the hospital requiring massive doses of insulin to keep her out of acidosis. Why? There was no fever, there were no stigmata of glandular dysfunction, and the possibility suggested itself that the patient had antibodies that destroyed insulin. To establish this point six experiments were performed. Since it is established that 0.02 unit of insulin produces convulsions in starved mice, experiments were planned to see whether the patient's serum would protect the mice against such convulsions.

Group A had nothing but 0.02 unit of insulin and 0.5 cc. of sodium chloride. The salt was used in order to have all volume uniform. All the injections were done intraperitoneally. The first injection was given at 2:55 P.M., the second at 2:56 P.M. At 3:20 P.M. the first mouse began to convulse, and, although alive, it could not walk but dragged its hind legs. At 3:55 P.M. the other one in this group revealed weakness of the hind legs. At 5:00 P.M. both of these animals were alive, having recovered.

In the experiment with Group B, 0.02 unit of insulin and 0.5 mg. of glucose were injected at 2:58 P.M. and 2:59 P.M. At 4:00 P.M. one animal developed convulsions and at 4:12 P.M., the other one began to drag the hind legs and to convulse. One of these animals died at 5:12 P.M.

Group C was given 0.02 unit of insulin and 0.5 cc. of normal serum at 3:04 P.M. and 3:05 P.M. At 3:30 P.M. the hind legs were unsteady in one, and at 4:00 P.M. paralysis and convulsions set in in the other. Both of these animals died.

In the Group D experiment 0.02 unit of insulin and 0.5 cc. of diabetic serum were injected at 3:07 P.M. and 3:09 P.M. At 4:45 P.M. one of these animals had a convulsion while the other was definitely slowed down and appeared ill.

Group E had 0.02 unit of insulin and 0.5 cc. of the patient's so-called resistant serum. The injections were given at 3:12 P.M. and 3:14 P.M., and at 5:12 P.M. both animals were extremely lively, neither showing any signs of illness. They were bouncing about the cage and were extremely active in searching for food.

One mouse was used for the Group F experiment, and only the patient's resistant serum was used. This was done to show that the serum itself was not toxic. The animal was perfectly well at 5:12 P.M.

Conclusions

1. The patient's serum had antibodies which protected the animal against insulin convulsions.
2. The serum of a diabetic patient, while not fully protective, nevertheless delays the onset.
3. Glucose solutions comparable to concentrations of 500 mg. per 100 cc. did not protect the animals against convulsions.

Discussion

The variability of response to insulin has been observed in nondiabetics by neuropsychiatrists in the treatment of schizophrenia. Similar variations are also known to occur in diabetics. It needs only to be pointed out here that the classification of diabetics into insulin-sensitive and insulin-resistant cases is well substantiated. The insulin-sensitive are young diabetics with acute onset; the insulin-insensitive or -resistant are the older diabetics, usually obese and arteriosclerotic, with insidious onset and a milder form of diabetes. This classification has been amply discussed by Falta, Himsworth, and De Wesselow. There are naturally exceptions to this classification, for even in the older group we may find thin and insulin-sensitive diabetics.

There are often variations in the response to insulin in the same diabetic, notably in cases of infections and diabetic acidosis, where large doses are required.

Normal physiologic insulin antagonists exist to maintain a dynamic equilibrium. Houssay, Long, and Young have contributed a great deal to a better understanding of the part that glands of internal secretion play in carbohydrate metabolism. Very large doses of insulin have been given in cases of hyperthyroidism, acromegaly, and Cushing's syndrome. Cases of hemachromatosis in terminal stages have required heroic doses of insulin.

Therapeutic approaches in t

doses of insulin are effective in infections. Similarly, large doses of insulin are lifesaving in the usual diabetic acidosis. The insulin refractory cases of diabetic acidosis reported by Marcel Labbe are questioned by Thannhauser[2] because he feels that a good many cases of diabetic acidosis in coma and in circulatory collapse would similarly prove to be insulin-resistant or -refractory. (Dr. Fabrykant, a former assistant of Dr. Labbe, informed me, however, that the cases reported by Labbe recovered from the diabetic acidosis through large doses of insulin but subsequently died of circulatory collapse.)

In the field of hyperactivity of known insular antagonists, thyroidectomies have served to overcome resistance to large doses of insulin in some diabetics. Celiac ganglionectomy has also been attempted. X-ray irradiation of the pituitary has been tried with variable results, and on a similar basis large doses of estrogenic hormone have been given in the attempt to suppress pituitary overactivity.

Lawrence refers to cases of known cause as "false insulin resistance."

In the *Klinische Wochenschrift* of February, 1933, Thannhauser differentiated two types of diabetic coma: *Insulinmangelkoma und Insulinrefraktäres Koma. Insulinmangelkoma* is diabetic coma due to insulin deficiency. *Insulinrefraktäres Koma* is insulin-refractory coma, a malignant type, which must be present for a longer period of time to be refractory, and which, without apparent cause, shows absolute resistance with positively no response to heroic doses of insulin.

Insulin resistance in insulin-deficiency coma is comparatively common in varying degrees, with varying complications, and the resistance disappears after the cause had been removed. In this group, we may include the case of Wiener[3], which required over 3,000 units of insulin during diabetic ketosis. The patient is now easily controlled with from 30 to 40 units of insulin daily and enjoys comparatively good health. A similar case presented by Glass, Spingarn, and Pollack,[4] required 2,360 units of insulin a day in diabetic coma and is now easily controlled with 5 units of protamine zinc insulin daily. The point made by Glass, Spingarn, and Pollack that very large doses should be resorted to in diabetic ketosis with insulin resistance is well taken and should be followed as a lifesaving procedure, as proved in their case and that of Wiener. One would naturally have to avoid a transition from diabetic coma to insulin shock and coma.

While resistance in insulin-deficiency coma is comparatively common, the insulin-refractory coma is fortunately very rare. The case we are reporting was an insulin-refractory type of diabetes.

An afebrile course, absence of endocrine stigmata (confirmed by autopsy), persistent high glycosuria, occasional ketonuria (difficult to deal with), higher blood sugars despite higher doses of insulin, the presence of insulin-neutralizing substances in the serum—are sufficient to classify this patient as an insulin-refractory case, although the mechanism is not fully understood.

Summary

An insulin-refractory case of diabetes mellitus was closely observed and studied for five months.

Death resulted from diabetic acidosis despite very high doses of insulin.

The clinical course was afebrile.

Allergic manifestations were present when the patient was first put on insulin.

Insulin-neutralizing substances were found in the serum of the patient.

Autopsy findings showed hyaline degeneration of the islands of Langerhans and fatty degeneration of the liver.

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2. Thannhauser, S. J.: Klin. Wchnschr. 12: 252 (Feb.) 1933.
3. Wiener, H. J.: Am. J. M. Sc., Sept., 1938, p. 196.
4. Glass, W. I., Spingarn, C. L., and Pollack, H.: Arch. Int. Med. 70: 221 (Aug.) 1942.

OUR MONTHLY COLLECTION OF FIRST AIDER'S ANSWERS

"Natural immunity is being able to catch a disease without the aid of a physician."

"To relieve a fainting person lay them on their back until conscience returns."

"To be strong and healthy you must eat several vermins every day."

"The big toe is sometimes called the pedagogue."

"The digestive juices are the bile and the sarcastric juice!"

"Respiration is a handy thing to know how to do, especially if you live far from a doctor."

"If you eat Vitamin A, you are sure to have resistance to disease, metabolism, and growth."

"The stomach is just south of the ribs."—*Texas State J. M.*

LEST WE FORGET

The Hippocratic Oath, still taken at some universities by graduates in medicine, is a code of ethics for physicians. It ends thus: "Whatsoever house I enter, there will I go for the benefit of the sick, refraining from all wrongdoing or corruption. . . . . Whatsoever things I see or hear concerning the life of men, in my attendance on the sick, or even apart therefrom, which ought not to be voiced abroad, I will keep silence thereon, counting such things to be as sacred secrets."—*Kentucky M. J.*



Case Report

PERSISTENT TYPHOID CARRIER FOLLOWING CHOLECYSTECTOMY CURED BY MEDICAL TREATMENT

ALEXANDER S. HONIG, M.D., New York City

THE following report concerns a typhoid carrier whose condition did not improve for a rather considerable period of time following surgical removal of the gallbladder, but who showed excellent response to proper medical therapy. This case emphasizes the necessity of specific medical management of this group of patients.

There is a certain hopeless attitude toward these typhoid carriers, who, after cholecystectomy, are not freed from the carrier state, but this paper illustrates a rather brighter aspect of the problem.

Case Report

A woman, 29 years old, was admitted to another hospital, complaining of acute pain of short duration in the midepigastrium. The past history of this woman revealed that five years prior to hospital admission she had had, on and off, pain in the epigastrium, distress, and some belching, for which she had been treated medically without relief. Examination revealed a temperature of 100 F., tenderness in the midepigastrium and right upper quadrant, with some upper abdominal boardlike rigidity.

The laboratory findings were: white blood cells, 11,600, with 81 per cent polymorphonuclear leukocytes; icterus index, 11.5. A week later the white blood cells were 6,400, with polymorphonuclears, 69 per cent. The clinical diagnosis was acute cholecystitis, with possible perforation. Ten days after admission, a culture of the feces showed the presence of typhoid bacilli, and a diagnosis of typhoid fever was made. Three weeks after admission the blood became positive for Bacillus typhosus. During her illness, the patient had several attacks of epigastric pain radiating to the back.

When the typhoid fever had subsided, cholecystectomy was performed. At operation, the gallbladder was found to be densely adherent to the omentum and was packed full of stones. The histologic examination showed chronic diffuse inflammation of the gallbladder with rupture of the wall. Culture of the gallbladder wall was positive for B. typhosus.

After removal of the gallbladder, the symptom of epigastric pain did not disappear, but instead it became worse. The patient had weekly attacks of epigastric pain, lasting from one-half hour to four hours, which were relieved by hot water or induced vomiting. The pain was sharp and colicky and was associated with belching, nausea, and vomiting. The symptoms were greatly aggravated by fried foods. Cultures of the feces continued to show B. typhosus. Examination and x-ray of the gastrointestinal tract disclosed no organic disease.

The patient was admitted to our special gallbladder clinic on November 1, 1939, over fourteen months after cholecystectomy. She complained of the above-mentioned symptoms and of her typhoid carrier status. The first duodenal biliary drainage, performed on the day of admission, showed a low concentration of bile salts, lack of free hydrochloric acid, and B. typhosus in the bile. The first bile specimen was obtained by means of the Twiss tube without stimulation. Two other specimens were collected after stimulation with 25 per cent magnesium sulfate (M specimen) and olive oil (O specimen), respectively. The bile sediment showed the presence of crystals of cholesterol.

These findings suggested a diagnosis of typhoid carrier status, common duct dyskinesia, and bile stasis. The patient received dilute hydrochloric acid (1 teaspoonful in 1/2 glass of orange juice) during meals. In addition, she took tincture of belladonna, 10 drops, and 1/2 grain of phenobarbital, three times a day after food. The next duodenal biliary drainage, three weeks later, did not show any substantial change, either in the clinical findings or in the laboratory data. The dose of tincture of belladonna was increased to 15 drops, and a low cholesterol, low fat diet was prescribed.

After three months on this regimen, all symptoms except belching disappeared. Duodenal biliary drainage was repeated. Cultures of bile specimens were reported negative for B. typhosus for the first time since the operation; however, some crystals were present, and the bile concentration was still poor. The next drainage, performed on March 1, 1940, showed a very good response to stimulation, a good concentration of the bile salts, a negative culture, and the disappearance of crystals from the bile. Clinically, the patient was completely free from symptoms. Repeated drainage and cultures (on March 13, March 18, and April 1, 1940) confirmed her complete clinical recovery and the disappearance of typhoid bacilli.

Discussion

On the grounds of history, operative findings, and postoperative course, we can assume that this patient suffered from disturbed function of the emptying mechanism of the gallbladder, caused by a spasm of the sphincter of Oddi, resulting in stasis of bile and formation of stones in the gallbladder. This condition was aggravated by a B. typhosus blood stream infection and acute typhoid cholecystitis years later. Removal of the gallbladder did not eliminate the underlying cause of the disturbance of the emptying function of the gall bladder. As a matter of fact, only a sequel of the dyskinesia (stone-packed gallbladder) was removed when cholecystectomy was performed, and the effect of the dyskinesia was just passed on to the common duct. The persisting spasm of the sphincter of Oddi and the associated periodic sudden distentions of the common duct only aggravated the biliary symptoms. It is ev

From the Clinic for the Study of Diseases of the Liver and Biliary Tract of the Department of Medicine and Surgery, New York Post-Graduate Hospital and Medical School, Columbia University.

TABLE

Dates	Culture for B. Typhosus	Concentration of Bile Salts in M	Concentration of Bile Salts in O	Free HCl	Crystals in Bile Sediment Cholesterol	Blood Cholesterol	Blood Cholesterol Esters	Icterus Index	Pain	Nausea	Associated Symptoms Vomiting	Belching	Distension
Nov. 1, 1939	+	1+	No Spec.	0	Occasional	184	102	8.3	+	+	+	+	+
Nov. 22, 1939	+	1+	2−	No Spec.	1+	200	98	4.2	+	+	+	+	+
*Nov. 29, 1939									+	+	+	+	+
*Dec. 29, 1939									+	+	+	+	+
*Jan. 10, 1940									0	0	0	+	+
Feb. 21, 1940	−	No Spec.	1+	No Spec.	2+				0	0	0	0	0
Mar. 13, 1940	−	2+	3+	0	0				0	0	0	0	0
Mar. 18, 1940	−	2+	3+	0	0				0	0	0	0	0
Apr. 1, 1940	−	3+	3+	0	0				0	0	0	0	0
Apr. 15, 1940	−	2+	2+	0	0				0	0	0	0	0
Mar. 19, 1941	−	2+	2+	0	1+	275		3.7	0	0	0	0	0

*Follow-up visits.

there was such a stasis of the bile in the common duct as that indicated by a crystalline sediment, no infection would clear up. Our basic interest was focused on the dyskinesia. The treatment prescribed was for relief of the spasm of the sphincter of Oddi. This consisted of antispasmodics, sedatives, hydrochloric acid, and frequent feedings, resulting in a flushing out of the biliary tree. The repeated biliary drainages also helped to counteract biliary stasis. Since the typhoid cholecystitis and cholangitis were not of very long duration, the typhoid infection did not cause enough damage to the liver and to the inner lining of the biliary tree to destroy it and establish foci which could never be eradicated.

In this case the treatment could be successful only if a specific therapy was used to overcome the common duct dyskinesia. In uncomplicated typhoid carrier cases it is customary for the carrier state to clear up within three to four months after cholecystectomy. There are cases reported, however, which did not clear up until eight months after cholecystectomy. To our knowledge, the case here reported is one of the very few cases which cleared up eighteen months after the operation. We believe the success in this case was due to specific medical therapy. The hopeless attitude which condemns a persistent typhoid carrier following cholecystectomy as an eternal carrier should be revised. One should not spare patience and time in an effort to save these cases from a lifelong stigma.

Summary

1. A case is presented of a typhoid carrier whose carrier state cleared up eighteen months after cholecystectomy.
2. This, we believe, was due to specific medical therapy.
3. Attempts should be made with specific medical treatment to clear up the carrier state in patients who fail to become bacteria-free following cholecystectomy.

DETECTION OF MALINGERING

In a recent tissue of *War Medicine*, Dr. J. L. Fetterman, of Cleveland, describes two simple means of detecting malingering in patients.

The sincerity of a patient who complains of muscular weakness can be tested with a dynamometer, according to Dr. Fetterman, for the instrument measures accurately the muscular strength of the hand and arm. The patient is instructed to compress the instrument as firmly as possible. If, in an instrument that registers 100 or 150 kilograms for the average person, the reading is only 20 kilograms, the physician recognizes a case of hysterical paralysis or of deceit. He may further test the patient by asking him to grasp the dynamometer quickly but not forcibly. If the reading is then 150 kilograms or more, the exaggeration of weakness is revealed at once.

Dr. Fetterman's other test is used in detecting pain, a test involving the use of a tuning fork. The tuning fork is made to vibrate and is then placed over various regions of the body. The patient answers by stating whether or not the fork is vibrating. When he is cooperating fully, the examiner casually applies the tuning fork to the region of pain. Whether or not the fork is vibrating, the patient will mention the pain if he is sincere in his complaint. If not, he will merely observe the vibration or nonvibration of the fork.

Postgraduate Medical Education

Programs arranged by the Council Committee on Public Health and Education of the Medical Society of the State of New York are published in this section of the JOURNAL. *The members of the committee are Oliver W. H. Mitchell, M.D., Chairman (428 Greenwood Place, Syracuse); George Baehr, M.D.; and Charles D. Post, M.D.*

Plasma Therapy and Whole Blood Transfusion

AT A joint meeting of the Tioga County Medical Society and the staff of the Tioga County General Hospital, a single lecture on "Plasma Therapy and Whole Blood Transfusion" was given. The speaker was Ralph G. Stillman, M.D., assistant professor of medicine (clinical pathology) at Cornell University Medical College. The meeting was held at 6:30 P.M. on June 22 at the Wagner Hotel in Waverly, New York.

The same subject was discussed for the Warren County Medical Society by Frederick N. Marty, M.D., instructor in clinical medicine at Syracuse University College of Medicine, at a meeting held on May 20 at the Glens Falls Hospital in Glens Falls.

Arrangements for the lectures were made by the Council Committee on Public Health and Education of the State Medical Society and the State Department of Health in cooperation with the Medical Division of the Office of Civilian Defense and the Health Preparedness Commission of the State War Council.

General Medicine

AT A JOINT meeting of the Medical Society of Greene County and the staff of Memorial Hospital of Greene County, held on Thursday, June 24, Russell L. Cecil, M.D., professor of clinical medicine, Cornell University Medical College, spoke on "Arthritis—Acute and Chronic." The meeting took place at 9:00 P.M. at the Memorial Hospital of Greene County in Catskill, New York.

EDUCATIONAL TREATMENT FOR COLOR BLINDNESS

Discussing a technic which is claimed will educate men who are color blind so that they can pass the armed forces' tests for color blindness, the *Journal of the American Medical Association* for June 5 says that "Obviously, it is for the services themselves to determine whether or not the tests for color blindness now used are sufficient, in view of the possibilities of learning to screen out enough persons who are color deficient, or whether or not the young man who is willing to put in the necessary time in an educational process to learn enough about the tests to enable him to pass them would not qualify because of superior learning ability or intelligence to meet the needs of the armed forces. . . . .

"In the *Journal* for March 20 reference was made to an alleged cure for color blindness said to have been devised by one J. H. Lepper, optometrist, of Mason City, Iowa. Subsequent to the publication of that statement, Lepper sent to the *Journal* a communication in which he insisted that he does control color blindness in from fifteen to twenty days so that boys who followed his methods passed government tests. He submitted complete instructions as to the technic that he uses, some special lenses which are used as a part of the procedure, and a list of men now in the Navy and in the Air Force who had previously been rejected but were accepted after having followed his technic.

"The material concerned was referred to appropriate agencies in Washington, which verified the information supplied by Lepper as to the men who had been rejected and later accepted following his attention. Investigators then visited certain optometrists in the eastern part of the United States who follow the Lepper technic and studied their results.

"These investigators believe that Lepper is conducting an educational rather than a therapeutic process. In his technic the subjects are instructed to get some one with normal color vision to assist them and to trace the shapes of the figures carefully even in those charts in which they can see the figures fairly well. They are instructed to continue working on harder and harder charts and to keep daily records of the charts which they can read and those which they cannot read. Thus the person concerned builds a learning curve and with sufficient time masters the color manual thoroughly.

"It seems quite likely that those with disturbances of color vision do fix in their minds appearances which are associated with certain colors when viewing objects that have for them some familiarity. No doubt re-examination of these individuals at a later date, using a different technic, would reveal that the persons concerned are still color deficient, although they did learn enough about the test ordinarily used to pass that test and thus enable them to enter military service. . . . .

"The optometrists who are now specializing in the Lepper technic might limit their promotion of the method to the statement that they teach men to pass the tests for color vision and avoid carefully the use of the word 'cure' in any relation to color blindness."—*A.M.A. News*

Medical News

State Medical Schools Will Train Army Doctors

ACCORDING to an announcement made recently by the War Department, the commanding officer of the Second Service Command has been authorized to negotiate training contracts immediately with several New York State medical schools for the Army's specialized training program. Colleges on the list include:

College of the City of New York, Syracuse University, St. Bonaventure College, Niagara University, New York University, Fordham University, and Clarkson School of Technology, Potsdam, basic phase; New York University, advanced engineering; Cornell University, advanced personnel psychology; Albany Medical College, Columbia University School of Medicine, Long Island College of Medicine, University of Rochester School of Medicine, Cornell University School of Medicine, New York University School of Medicine, University of Buffalo School of Medicine, and Syracuse University School of Medicine; Columbia University School of Dentistry, New York University School of Dentistry, and University of Buffalo School of Dentistry; New York State Veterinary College; and Cornell University, premedical training.

Medical Society Formed to Exchange Information With Soviet Union

THE American-Soviet Medical Society has been founded to meet an increasing demand for information about the results and achievements of Soviet medicine. Reports have reached this country of spectacular feats of surgery wrought by the Soviet medical corps all along the far-flung battle line, from Leningrad to the Caucasus.

These contributions to medicine are the result of twenty-five years of untiring effort, during which the Soviet Union has built up an impressive system of public health and medicine. In hundreds of scientific research institutions behind the battle line, thousands of physicians and scientists are engaged in investigations. Yet the results are little known in this country, primarily because until now there has been no organization prepared to exchange medical information, although the language in many cases has proved an almost insurmountable barrier. The American-Soviet Medical Society will fill this gap.

Through meetings, the publication of a journal, and the establishment of a library of information, the Society will tell physicians of America and members of the allied professions on what problems our Soviet colleagues are working and what steps they are taking to solve them. On the other hand, the Society will send American medical books and periodicals to the Soviet Union in order to keep the Russians informed of scientific developments in this country and to stimulate closer cooperation between the medical corps of the two countries. After the war, as soon as conditions permit, the Society hopes to promote the exchange of students and scientists and to sponsor study tours in the two countries.

The Society gave a dinner in honor of Professor Vladimir V. Lebedenko at the Hotel Pennsylvania on Friday, June 18. Dr. Lebedenko is at present in the United States as Soviet representative of the Russian Red Cross. He is professor of surgery at the First Moscow Medical Institute and executive secretary of the Soviet Association of Surgeons.

The dinner marked the official launching of the American-Soviet Medical Society.

Among the speakers were Dr. Walter D. Cannon, professor emeritus of physiology at Harvard University and chairman of the Society; Dr. Henry E. Sigerist, director of the Institute of the History of Medicine at Johns Hopkins University and editor of the Society's forthcoming journal, the *American Review of Soviet Medicine;* as well as representatives of the United States Public Health Service and of the New York City Department of Health.

The president of the Society, Dr. Walter D. Cannon, is a member of the National Academy of Sciences of the United States and of the Academy of Sciences of the U.S.S.R.

The temporary offices of the Society are at 130 West 46 Street, New York City.

Maternity and Infant Care for Wives and Infants of Men in the Armed Forces

MATERNITY care for wives of men of certain grades in military service and medical and nursing care for their babies can now be provided without cost to the family through state health departments under plans approved by the Children's Bureau. Funds for the next few months have already been voted by Congress in a bill signed by the President on March 18, 1943.

Under this plan a pregnant woman may receive prenatal care from a qualified doctor of medicine in a clinic or at his office. At childbirth, whether she stays at home or goes to a hospital, she and her baby may receive medical and nursing care. Complete maternity care may be provided, including a final physical examination six weeks after the baby is born, and the baby may receive medical care during the first year of life.

In states providing these services, the wife and infant of any man serving in the fourth, fifth, sixth, or seventh grade of the Army, Navy, Marine Corps, or Coast Guard are eligible for care as long as similar services are not available through medical or hospital facilities of the Army or Navy or by or through official state or local health agencies.

How long the wife has lived in the state does not matter. How much money the family has does not matter. Race or color does not matter.

County News

Albany County

Dr. Leonard G. Stanley, of Albany, is celebrating his fortieth year as a doctor-orchestra conductor. Instead of giving up his musical interests after he had worked his way through medical school by playing the violin, Dr. Stanley organized a community orchestra and became its conductor. Since the group was founded, the orchestra members have met once a week during the winter seasons to rehearse. Their anniversary was observed with a regular weekly concert, followed by a banquet at the DeWitt Clinton Hotel in Albany.

Broome County

Approximately 175 persons who require additional or special foods to meet medical and dietary requirements are now receiving supplemental food rations under a plan inaugurated by the Eastern Broome County War Price and Rationing Board.

The plan was developed by the board's food panel, representatives of the Broome County Medical Society, and dieticians, and is aimed at providing foods for ailing persons who would be unable to maintain proper diets without supplemental allowances.

The program is one of the major projects of the food panel and has been instituted with the assistance of a medical society committee consisting of Drs. Howard W. Davis, and M. S. Bloom, working with Morris Gitlitz, panel chairman.*

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Led by William H. Mellor and Dr. Ralph M. Vincent, members of the executive committee of the Broome County Tuberculosis and Public Health Association and the public health committee of the Broome County Medical Society recently inspected the mobile x-ray unit which was in operation for employees at Ozalid.

After looking over the state-owned equipment, members of the two committees were guests at luncheon in the Ozalid cafeteria.

Dr. Vincent's committee consisted of Dr. Vesta Rogers, Dr. C. J. Longstreet, Dr. Irving Werner, Dr. Walter J. Farrell, Dr. A. J. Stillson, and Dr. S. E. McManis.*

Cayuga County

The county society has started a project to secure the complete records of members of the society who are in the military service of their country, for preservation in the archives of the society.

The work has been started by a special committee composed of Dr. C. F. McCarthy, chairman and historian of the society, Dr. Bernard L. Cullen, Dr. Leonard H. Rothschild, and Dr. Frank L. DeFurio.

The society has had members in the War of the Revolution, the War of 1812, the Mexican War, the Civil War, World War I, and now there are nearly 30 members serving in World War II.

Dr. McCarthy has mailed to all physicians now serving a comprehensive questionnaire, covering education, private practice, hospital affiliations, membership in professional associations, and military service.*

Chemung County

The Prepayment Medical Service Plan of the Blue Cross Group Hospital Insurance Inc. was explained to the Chemung County Medical Society by a Blue Cross representative at a meeting held on June 2 at the Arnot-Ogden Hospital.

The society has been studying medical service plans for several months.*

Dutchess County

The final meeting of the season of the county society was omitted. The meeting, which would have included the annual outing, was called off on account of gasoline rationing restrictions, Dr. Emil A. Stoller, society president, said.

In the place of the annual outing and scientific program, a business meeting was held on June 9.

In connection with the war effort, Dr. Stoller said the society has purchased $2,000 worth of war bonds from accumulated funds of the organization.*

Erie County

In cooperation with the movement begun by the National Noise Abatement Council, Buffalo has set up a local committee to organize a drive against unnecessary noise in war industrial plants, offices, and homes. The program was opened with a concentrated campaign during National Noise Abatement Week, from May 30 to June 5.

Members of the committee are W. L. Fetch, chairman; Dr. Herbert H. Bauckus, president-elect of the New York State Medical Society; Dr. Francis E. Fronczak, health commissioner; Police Commissioner Charles E. Cannon; Harry I. Good, associate superintendent of schools; Councilman Russell J. Leech; and C. G. Travers, Claude J. Brumbaugh, Joseph N. Lopes, Ray Pendleton, Fred W. Fogg, and George Prong, of the Buffalo Chamber of Commerce.

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Dr. Albert H. Garvin was re-elected president of the Buffalo and Erie County Tuberculosis Association at the annual meeting in May. Dr. Horace LoGrasso was re-elected a vice-president.

Officers of the association reported that because of crowded housing accommodations and other results of the war, the death rate from tuberculosis increased from 47 deaths per 100,000 population in Buffalo in 1940 to 54 per 100,000 in 1942.*

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Dr. Harold J. Welsh, of Buffalo, has been appointed deputy county physician (medical examiner) by Commissioner of Charities and Correction Fred L. Heitzmann, to succeed Dr. Wallace R. Stewart, who has resigned.

Dr. Welsh has served on the pathology staffs of New York, Memorial, and Bellevue hospitals and the Cayuga County Laboratory in Auburn City Hospital.*

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Dr. Harold F. R. Brown, president, reports that the county society's comitia minora has accepted with regret the resignation as first vice-president of Dr. John D. Naples, now in the Army Medical Corps in California, and has elevated Dr. P. H. J. Buckley from the second vice-presidency to that post. A second vice-president is to be named.*

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* Asterisk indicates that item is from local newspaper.

At the age of 81, Dr. Lawrence G. Hanley, who has practiced medicine in Buffalo for fifty-six years, has no thought of retirement and keeps up with a full load of work. A graduate of Niagara University, from which he holds five degrees, Dr. Hanley has also studied in Europe. He is a member of the American Medical Association, the Erie County Medical Society, and the Buffalo Academy of Medicine.

Kings County

Some 100 Brooklyn and Long Island surgeons, members of the Brooklyn and Long Island Chapter of the American College of Surgeons, watched a series of operations in the New York Post-Graduate Medical School and Hospital on May 22.

The surgeons made their observations in the amphitheater of the Medical School during several of the operations and others were performed in the large operating rooms of the hospital. In the amphitheater Drs. J. William Hilton and Thomas H. Russell, the latter chief surgeon of New York Post-Graduate, performed operations regarded as rare feats of surgery.

In the evening the Brooklyn and Long Island surgeons entertained those of the New York Post-Graduate Medical School and College who had participated in the actual demonstrations and scientific discussions at dinner at the Waldorf-Astoria.

Dr. Charles A. Gordon, president of the Brooklyn and Long Island Chapter, and Dr. John F. Raycroft, chairman of the scientific committee, arranged the program, assisted by Dr. Robert F. Barber, the vice-president, and Dr. Merrill N. Foote, secretary-treasurer.

In the gathering were the following Brooklyn surgeons: Drs. Thomas Brennan, Walter A. Coakley, head of the medical board of the Kings County Hospital; Ralph Lloyd, Charles Mueller, Louis Berger, Milton Bergmann, Laurence Bodkin, Benjamin Cissel, Julius M. Dan, George H. Davis, S. Lloyd Fisher, John J. Gainey, Edwin J. Grace, Harry Greene, Augustus Harris, William Linder, Joseph M. Linett, Frank E. Mallon, A. W. Martin Marino, George Marsh, Robert Moorhead, Joseph Nevins, Samuel Parnass, Anthony Pirundini, Nunzio Rini, Joseph Tenopyr, and Ottokar Tenopyr.

Among the Long Island men were Drs. William Bartels, Hempstead; Lawrence Breitbart, Flushing; Charles Murphy, Amityville; Joseph Connolly, Glen Cove; John M. Scannell, Jamaica; J. H. Hulka, Long Island City; and Frank S. Child, Port Jefferson.*

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Dr. Thomas A. McGoldrick, president of the Medical Society of the State of New York, was one of the recipients of the Brother Thomas Memorial Medal at the commencement exercises of Manhattan College.*

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Dr. John J. Gainey, president of the Kings County Medical Society, has become a member of the City Committee to Study a Plan to Provide Medical Service for People in Moderate Circumstances.

Dr. Gainey was invited by Mayor F. H. LaGuardia to serve as the Brooklyn representative. The committee is made up of medical society representatives and employer groups and was formed to work out a cooperative medical group insurance plan. *

Monroe County

Dr. William A. Sawyer, medical director of Eastman Kodak Company, was named 1943 recipient of the Knudsen Medal for "the most outstanding contribution of the year to industrial medicine."

The award, established in 1939 by Lieutenant General William S. Knudsen, then president of General Motors Corporation, was presented at a dinner of the American Association of Industrial Physicians and Surgeons. Selection of Dr. Sawyer was made by a committee of past medal winners.

The physician was cited for his "outstanding work in control of tuberculosis, constructive contributions to a practical program of nutrition in industry, and setting up a program of rehabilitation for handicapped workers in industry."

Dr. Sawyer, a native of Iowa and a graduate of the University of Pennsylvania Medical School, has devoted his entire career to industrial medicine. After two years with Philadelphia firms, he joined Eastman in 1919.*

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Notwithstanding rationing, Americans are sure to have well-balanced amounts of food in 1943, and "the slight reduction in calories will do us more good than harm," Dr. John R. Murlin, head of the department of vital economics of the University of Rochester, told the county society at a meeting held on May 18 at the Rochester Academy of Medicine.*

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According to Dr. J. F. McCahan, chairman of the Rochester committee on Noise Abatement, noise is responsible for errors, a statement that Dr McCahan substantiated with figures on the improvement shown in offices in which noise has been reduced.

Dr. G. Kirby Collier, neurologist and president of the Medical Society of Monroe County, also pointed out that noise produces physical harm that is more serious than we generally suspect.

Dr. McCahan was the speaker at a meeting of the Rochester Chamber of Commerce Health Conservation Committee during the recent Noise Abatement drive in Rochester.

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Dr. Achsa Bean, a physician who served for a year as a major in the Royal Army Medical Corps in London and York, England, has received a commission as a lieutenant (j.g.) in the Waves.

Dr. Bean, now stationed at the Naval Training School (Women's Reserve), the Bronx, is one of the first physicians to join the Waves. She was in England from August, 1941, until August, 1942, and was in charge of men's wards in Army hospitals.

Dr. Bean was graduated from the University of Maine and received her M.D. degree from the University of Rochester School of Medicine in 1936. After serving as an instructor in medicine at the University of Rochester, she went to Vassar College as assistant chairman of the department of health and hygiene.*

Nassau County

Dr. Nathaniel H. Robin, of Hempstead, will take over the presidency of the Nassau County Medical Society July 1. He was installed at the organization's annual meeting in the Nassau Hospital auditorium, Mineola, on May 25.

Other officers elected at the annual session are the following doctors: Austin B. Johnson, of Cedarhurst, president-elect, to take office in 1944; William C. Atwell, Great Neck, vice-president; E. Kenneth Horton, Rockville Centre, secretary-treasurer; delegate to the state medical society for two years, Louis A. Van Kleeck, Manhasset.

On the board of censors are Drs. John M. Galbraith, of Glen Cove; Stephen F. Gerde, of Freeport; A. Milton Goldman, of Rockville Centre; James L. Winemiller, of Great Neck; and Charles Edwin Woods, of Westbury.

Elected to the workmen's compensation board for two-year terms are Drs. B. L. Burdick, of Rockville Centre; Harold A. Butman, of Manhasset, and Otho C. Hudson, of Hempstead.*

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The Nassau County Health Department held an anniversary dinner at the Garden City Hotel on May 18. More than 100 were present. Speakers included Dr. Benjamin R. Allison, chairman of the County Health Board; Dr. Earle G. Brown, Nassau County Health Commissioner; County Executive J. Russel Sprague; Dr. Edward S. Godfrey, Jr., New York State Health Commissioner; Dr. Ernest L. Stebbins, New York City Health Commissioner.

Dr. R. C. Williams, of the U.S. Public Health Service; Dr. E. N. Whitcomb, president of the Nassau Medical Society; and Dr. H. E. Meleney, professor of preventative medicine at New York University, were also speakers.

New York County

The Welfare Council, 44 East 23 Street, Manhattan, has on hand a limited number of copies of *Chronic Illness in New York City* by Mary C. Jarrett, a study in two volumes made by the Council's Research Bureau. These books are available to physicians and agencies to whom they may be useful. The only charge made will be for wrapping and mailing, amounting to about twenty cents.

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The Department of Ophthalmology of the College of Medicine of New York University announces that because of its educational program associated with the war effort the nine months' Graduate Course in Ophthalmology will be discontinued for the duration of the war.

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The Phi Delta Epsilon Medical Fraternity sold $600,000 in war bonds during the last drive. A luncheon celebration was held at the Waldorf-Astoria Hotel, Saturday, June 5, when Treasury Department officials named two heavy bomber planes in honor of the Fraternity.

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The Eighth Annual Convention of the National Gastroenterological Association was held on June 2 at the Hotel Astor in New York City.

Dr. Anthony Bassler, president, of New York, presided at the scientific sessions. Included in the day's program was a military luncheon at which Lt. Comdr. Michael Lake, M.C., USNR, discussed "Peptic Ulcer in the Navy."

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Dr. Axel Leonard Melander, chairman of the department of biology at the College of the City of New York and owner of one of the country's largest private collections of diptera, or winged flies, will retire at the end of the present semester. Dr. Melander, who will be 65 years old in June, came to City College from Washington State College in 1926. He was made chairman of the biology department in 1928.

A graduate of the University of Texas, he obtained the degree of Doctor of Science from Harvard University in 1914. Afterward, he taught biology for twelve years at Washington State College.*

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One hundred underprivileged diabetic children of this city and adjacent communities left New York on July 1, the opening day of Camp Nyda at Wallkill, New York, where they have spent a two-week vacation. The New York Diabetes Association, a group of leading specialists on diabetes, is sponsor of the camp.

The Association announced that the number of youngsters to be accommodated depended upon the response to the appeal for funds that the association was making. To care for the children this year it was estimated that $7,000 would be needed.*

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A plan whereby indigent persons would be cleared through a central municipal registration bureau and physicians would be paid by the city for their treatment has been adopted by the executive heads of the Medical Society of the County of New York.

At present, the city's medically indigent are treated at public and private hospitals, at home, and in the offices of physicians, but there is no systematic clearing of the patients to prevent duplication of service, and physicians are not remunerated for their services, it was stated by Dr. Charles Perera, chairman of the society's Special Committee on Education and Publicity.

Under the plan, a central municipal registration bureau would be established, with a paid physician as chief executive.

This bureau would come under a nongovernmental, nonprofit agency or corporation, to be set up with the cooperation of the city government. The board of directors would consist of one-third city officials, one-third physicians selected or appointed by the five county medical societies of Greater New York, and one-third prominent laymen acceptable both to physicians and government representatives. The medical members would constitute the medical policy committee. There would be no change in the medical policy without the consent of the medical policy committee.

In order to qualify for treatment as an indigent, a single person would have to have an annual income of $1,000 or less, the committee decided.

The income of a man and wife would have to be $1,450 or less and the allowance for each dependent would be $250, not to exceed $1,950 for a family. These rates would be adjusted at the discretion of the policy committee. The bureau would require an annual certificate of registration.*

Oneida County

At the Utica Academy of Medicine's May meeting, Dr. Maurice J. Costello, assistant dermatologist and syphilologist, Bellevue Hospital, New York City, spoke on "Sulfonamide Therapy in Dermatology." Discussion was opened by Dr.

H. D. Parkhurst. Dr. O. J. McKendree, of Utica State Hospital, had as his subject "Wartime and Psychiatry." Discussion of his address was opened by Dr. L. L. Bryan, of Marcy State Hospital. A tribute was paid the late Dr. Andrew Sloan, who was the first president of the Academy of Medicine. Dr. Ross Helmer, Utica State Hospital, presided.

The town of Rome recently conducted a campaign for the prevention of diphtheria, the goal of which was to immunize all Rome children between the ages of 6 months and 12 years.

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Dr. Karl W. Gruppe, major in the Army Medical Corps, has been honorably discharged and has resumed his practice in Utica.*

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Dr. Max Gara, a graduate of the University of Vienna, has been appointed village physician for New York Mills.

Dr. Gara was head surgeon of the Workmen's Compensation Hospital, Vienna, for twelve years. His American internship was served in Medical Center, Jersey City. He also served as resident physician at Memorial Hospital, Manchester, Connecticut.

He comes to New York Mills from New York City through the cooperation of Dr. H. D. MacFarland of the Oneida County Medical Society procurement and assignment committee, the Village of New York Mills having been without a resident physician for several months.*

Ontario County

Dr. Harry M. Smith entertained the Canandaigua Medical Society at dinner and provided the program for the May meetin[illegible] Hotel. He showed colored [illegible] talked on the seashells of Florida, and also showed scenic views.

Dr. E. C. Merrill, vice-president, presided in the absence of Dr. Margaret T. Ross. Guests were Dr. H. R. Hageman, Palmyra, and Drs. Ludwig Mayer, Hans Hansen, and Augustus W. Sainsbury, of Canandaigua.

Dr. Merrill was host to the June meeting of the society on June 8 at his home. Dr. W. C. Eikner, of the Clifton Springs Sanitarium staff, read a paper on "The Prostate," as speaker for Dr. John H. Pratt.*

Queens County

A joint meeting of the county society and the Queens County Bar Association was held on Tuesday, May 25, at 8:30 P.M. The program was opened with remarks by Mr. Bernard J. Ferguson, president of the County Bar Association. The scientific addresses included: "The Doctor in the Court Room," by Honorable Joseph M. Conroy, county judge in Queens County; "Some Psychiatric Problems Common to the Practice of Law and Medicine," by Carl Binger, M.D., assistant clinical professor of medicine, department of psychology at Cornell Medical College; and "Medicolegal Significance of Histologic Examinations," by Dr. B. M. Vance, deputy chief medical examiner of the city of New York.

Dinner at Forest Hills Inn at 7:00 P.M. preceded the program. The guest speakers were present at the dinner.

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Expansion of tuberculosis education, including x-ray activities and six new control projects, to meet current and postwar needs, has been decided upon by the board of directors of the Queensboro Tuberculosis and Health Association for its 1943 program, Dr. James R. Reuling, of Bayside, president, has announced. The proposals were drawn up by the Plan and Scope Committee, headed by Dr. H. McLeod Riggins, medical director at Triboro Hospital for Tuberculosis.

The association's Industrial Chest Service, which heads the list of projects is designed to combat tuberculosis among war workers and their families.

A special survey of present and postwar hospital needs for the tuberculous in New York City will be undertaken this year in cooperation with the Greater New York Tuberculosis and Health Advisory Committee.

The association will begin a project of education among patients already in tuberculosis hospitals. Among other new projects is a demonstration of tuberculosis case-finding in general hospitals in Queens.

A system of postgraduate study in tuberculosis for Queens doctors, with scholarships to be awarded by the association, was recommended by the board.

Plans were adopted for expansion of the rehabilitation department and the addition of personnel to reach more patients recovering from tuberculosis.

Dollar x-rays for the general public, Negro health work, consultation chest clinics, and surgical research will be continued and extended.*

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The charter members of the Rockaway Medical Society recently celebrated the twentieth anniversary of the founding of the organization with a dinner given to Dr. Martin L. Sowers, a former president and one of the organizers of the Society, at the Seawane Golf Club, Hewlett Harbor.

The dinner was given on the occasion of Dr. Sowers' fiftieth birthday. Those attending the celebration included members of the medical and surgical profession practicing in the Rockaways who were members of the Society when it was organized.

Dr. Joseph Baum, of Woodmere, formerly of Far Rockaway, acted as master of ceremonies, while Dr. Leonard S. Rau, formerly of Lawrence, Long Island, and now of Manhattan, was one of the speakers.*

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A series of articles prepared by the Child Welfare Committee of the county society, "designed to provide timely advice to parents," has been published in the Long Island press. Among the topics covered in the series are skin rashes, smallpox, diphtheria, whooping cough, tetanus, typhoid fever, scarlet fever, measles, the common cold, and infantile paralysis.

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Dr. Frank L. Babbott, former president of the Long Island College of Medicine, has been elected chairman of the college board of trustees, to succeed Henry A. Ingraham.*

Rensselaer County

Dr. Harriet E. Kenney, school physician at Cohoes, has officially retired on pension, at the age of 70.

Dr. Kenney has been medical supervisor in the public schools of the city for more than a quarter of a century.

A gift of a purse was presented to Dr. Kenney on behalf of the principals, teachers, and administrative staff members of the Education Department.

Dr. M. J. Keough, who has served as health commissioner of the city for a number of years, will assume the post.

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Schenectady County

The semiannual meeting of the county society was held at the Mohawk Golf Club on Thursday, June 3. Dinner, which was served at 7:00 P.M., was preceded by a business meeting. Speaker of the evening was Dr. N. A. Pashayan, who gave an illustrated talk on "Egypt and the Holy Lands."

Seneca County

The regular semiannual meeting of the county society was held at the Armitage Tea Rooms in Seneca Falls on May 13. At the scientific sessions, which took place in the afternoon, Dr. J. G. Fred Hiss, of Syracuse, spoke on "Rheumatic Fever and Its Complications," and a demonstration blood transfusion was given by representatives of the Upjohn Company.—*F. W. Lester, M.D., Secretary*

Steuben County

Dr. Carl G. Schwan was elected president of the Hornell Medical and Surgical Society at the annual banquet and meeting on May 12 at the Hornell Country Club. Dr. D. Roger Haggerty, of Arkport, was elected vice-president and Dr. James I. Yanick, secretary-treasurer. There were 26 members present.

Dr. C. E. Patti, the retiring president, who served for two consecutive years in office, presided and offered a toast of tribute to members now serving in the armed forces. They are: Maj. Arthur Karl, Maj. Thomas Cotton, Capt. James MacFarland, Capt. Charles Rose, Lt. Richard Travis, Lt. Alphonse Lucas, and Lt. (j.g.) Leon Roe.

Lieutenant Roe, the only serviceman member able to be present, was home on leave from Fisher's Island and visiting at his home in Canisteo. He spoke of his experiences with medicine in the Navy and answered inquiries of guests concerning his training and work.*

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The summer meeting of the county society was held Thursday, June 10, at the Hotel Wagner, Bath. Luncheon at 12:30 P.M. was followed by a business meeting at 1:30 P.M.

Dr. R. J. Shafer, of Corning, spoke on "Sesame and Peanut Oil Cysts." The new Farm Security Administration contract and the Medical Insurance Plan were also discussed.*

Suffolk County

Officers and directors of the Suffolk County Tuberculosis and Public Health Association were elected at meetings of that organization on Tuesday, May 25. The officers elected for the coming year are as follows: Dr. Frank S. Child, president; Frank B. Smith, first vice-president; John H. Aldrich, second vice-president; Mrs. Allan Heath, third vice-president; John S. Howe, treasurer; and Earl P. Rubini, secretary.

Directors elected to serve for a three-year period are as follows: Mrs. B. V. Burdge, Huntington; Dr. Frank S. Child, Port Jefferson; Mrs. J. Henry Daily, Babylon; Dr. David Edwards, East Hampton; Mrs. Joel S. Lawson, St. James; Mrs. Verne L. Rockwell, Smithtown Branch; Frank B. Smith, East Hampton; Earl P. Rubini, Southampton; and Capt. George H. Monsell, Cutchogue.*

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Dr. William H. Ross, of Brentwood, observed his fifty-fifth year in the practice of medicine in June. He began his internship at Presbyterian Hospital, New York, in June, 1888, after graduating from Columbia University College of Physicians and Surgeons.

Dr. Ross was recently elected chairman of the Board of Trustees of the New York State Medical Society. He has already served two terms in this capacity, having been a trustee of the medical society continuously since 1928, except for the two years he retired to serve first as president-elect of the society and then as its president. The chairmanship of the Board of Trustees carried with it membership on the newly formed Planning Committee for Medical Policies but Dr. Ross declined this honor and designated another member of the Board of Trustees to serve in his place.

Dr. Ross, who has steadily advocated medical leadership for the important problems in medicine arising from the demands of a "rapidly changing world," foretold these changes in an article published in the *Long Island Medical Journal* twelve years ago, when the present trends were barely discernible. This prediction, now a reality, was recently quoted in the NEW YORK STATE JOURNAL OF MEDICINE.*

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Dr. Joseph H. Werk formerly of Bohemia, New York, will move to Port Jefferson, about the first of next month, augmenting the medical staff of the village, which has been decimated by several members of the profession entering the armed services of the country.

Dr. Werk has been a practicing physician in Bohemia since 1939. He was born in New York City in 1909 and graduated from the De Witt Clinton High School. He took his degree of B.S. at the City College of New York in 1930, and his medical degree at the University of Glasgow, Scotland, in 1935. His internship and residencies were at the Bronx Hospital and Physicians' Hospital in New York City.

The doctor is a member of the Suffolk County Medical Society and is on the staff of the Mather Memorial Hospital.*

Sullivan County

Dr. Nathan Nemerson, eye, ear, nose, and throat specialist, has opened an office in Monticello.

The doctor, who has practiced at South Fallsburg the past sixteen years, is a graduate of New York University, where he received his degree of Bachelor of Science, and of Cornell University, where he was awarded the degree of Doctor of Medicine in 1926.

He is vice-president of the Sullivan County Medical Society; a member of the New York Academy of Medicine; and a member of the New York Society for Clinical Ophthalmology. He has been certified as a specialist by the American Board of Ophthalmology.*

Warren County

The semiannual meeting of the Warren County Medical Society was held Thursday, May 20, in the auditorium of the Glens Falls Hospital at 8:30 P.M. Routine

mittee was appointed to study the matter of Medical Expense Insurance and to report at the next meeting.

The speaker of the evening was Dr. Frederick N. Marty, instructor in clinical medicine, Syracuse University, College of Medicine, who spoke on "Plasma Therapy and Whole Blood Transfusions." This program was part of the postgraduate instruction arranged by the Council Committee on Health and Education of the Medical Society of the State of New York and the New York State Department of Health in cooperation with the Medical Division of the Office of Civilian Defense and the Health Preparedness Commission of the State War Council.

Thirty-five members were present. The lecturer was well received, and a very interesting discussion followed his address.—*Morris Maslon, M.D., Secretary-Treasurer*

Westchester County

Dr. Lester Wartels, recently retired from active service as a captain in the Army Medical Corps following a surgical operation, has been appointed assistant city physician in New Rochelle, to succeed Dr. Raymond Shea, who has left for active duty in the Army. Dr. Clifford H. Fulton holds the position of city physician.*

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The following resolution was passed recently by the Westchester County War Council:

"WHEREAS, since June, 1940, when he became chairman of the Medical Preparedness Committee of the Westchester County Medical Society, Dr. Erich H. Restin has devoted his attention to [illegible] Emergency Medical Service [illegible] County, and

WHEREAS, he has been unsparing of his time in this vital public service, and

WHEREAS, conditions beyond his control have necessitated his resignation as Director of Emergency Welfare Service for Westchester County; now, therefore be it

Resolved, by the Westchester War Council, that this expression of public appreciation of the devoted and able services of Dr. Erich H. Restin, as Director of Emergency Medical Service of Westchester County, be made a part of the official transactions of this Council and that a copy of this resolution be sent to the press and to Dr. Restin.*

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Dr. Ralph T. B. Todd, of Tarrytown, is serving as chairman of the Westchester Medical Advisory Board for the local branch of Planned Parenthood Federation of America, which is now conducting a drive to raise $2,400. Other physicians serving on the Board include, Dr. William J. Vogeler, of Yonkers; Dr. Francis Giammatei, of Tarrytown; Dr. Wilbur W. Stearns, of Yonkers; Dr. Waring Willis, of Bronxville; and Dr. Edwina Kittredge, of Yonkers.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Jacob Bressler	53	Univ. & Bell.	March 10	Manhattan
Lloyd L. Carr	88	Jefferson	February 21	Brooklyn
Louis Cohen	73	N.Y. Eclectic	April 26	Manhattan
Loyal L. Dunlop	51	Albany	June 14	Madrid
Louis Fichter	59	P. & S., N.Y.	March 22	Manhattan
Samuel I. Fine	54	L.I.C. Hosp.	June 24	Bronx
Bernard J. Gretsch	69	P. & S., N.Y.	April 1	Manhattan
Boleslaw R. Gurgas	47	Buffalo	June 16	Buffalo
John F. Kane	65	Buffalo	June 16	Olean
Adolph S. Katzman	66	Univ. & Bell.	March 12	Monroe
Alfred I. Lowenthal	54	Pennsylvania	March 11	Manhattan
Marcus Markiewicz	86	L.I.C. Hosp.	June 15	Manhattan
Nicholas J. McCaul	63	Maryland	June 19	Brooklyn
Charles Mester	51	Albany	February 11	Manhattan
Otto L. Mulot	75	N.Y. Univ.	June 22	Brooklyn
John F. Sabbia	47	Fordham	June 20	Brooklyn
Samuel Schwartzman	63	Cornell	March 26	Bronx
Myles B. Sharkey	52	Maryland	June 21	Syracuse
J. Walter Stiles, Jr.	63	Univ. & Bell.	April 13	Manhattan
Joseph S. Tanner	—	N.Y. Univ.	May 10	Manhattan

Hospital News

OCD Advises Gas Cleansing Stations at Hospitals

HOSPITALS should make complete plans for the immediate establishment, when needed, of "gas cleansing stations" for the care of injured persons who have been exposed to war gases, the Medical Division of the Office of Civilian Defense advises in Operations Letter No. 124 (Supplement No. 4 to Operations Letter No. 42). Large communities should establish at least one gas cleansing station without delay for training purposes.

The OCD recommends that the term "gas cleansing" be used to describe the procedure of removing vesicant liquids from persons and that the term "decontamination" be reserved for areas and objects.

The primary purpose of gas cleansing stations is the protection of hospitals and casualty stations and their staffs and patients from contamination by injured persons who have been exposed to vesicant agents, the Operations Letter points out. Contaminated persons who are not disabled are expected to cleanse themselves in the nearest private home or in other local facilities.

Existing facilities in casualty receiving hospitals must be converted into gas cleansing stations, it is pointed out, since under present conditions of scarcity of materials and manpower, construction of new facilities is generally not justified. Hospital facilities that should prove suitable are suggested as follows: hydrotherapy rooms, nurses' or interns' locker and shower rooms, part of the outpatient department, garages, or other separate structures. In the event that these are not available, facilities to care for persons who are both injured and contaminated must be arranged in schools, gymnasiums, swimming pools, shower rooms, club houses, and community centers.

Cleansing stations should be equipped to take care of one-third to one-half of the hourly casualty receiving capacity of the hospital to be served, the OCD recommends. The professional staff will consist of Mobile Medical Teams assigned when the station is activated, supplemented by additional attendants from the Emergency Medical Service. In addition to cleansing and emergency treatment, the staff of the gas cleansing station will assist in undressing the injured, moving stretchers, caring for clothing and valuables, maintaining supplies, and dressing wounds.

It is recommended that cleansing stations be established at or near hospitals and casualty stations which they are to serve. Every hospital that may be required to handle an appreciable number of casualties should have access to such cleansing station facilities.

The local Chief of Emergency Medical Service is responsible for the development of these stations, with the advice of the Senior Gas Officer of the community.

Improvements

An oxygen tent and two bedside tables have been donated to the Ossining Hospital by the Woman's Auxiliary.*

• • •

General Electric x-ray engineers have completed the installation of new x-ray equipment at St. Jerome Hospital in Batavia.*

• • •

Mount Vernon Hospital has installed ultraviolet germicidal lamps in two nurseries on its maternity floor. Funds for the installation were contributed by the woman's auxiliary of the hospital, which also recently contributed $450 for the purchase of another incubator for premature infants.

All parts of the nursery are now irradiated twenty-four hours a day. In 1942, 1,048 babies were born in the Mount Vernon Hospital and in the first three months of this year 280 babies have been born at the hospital, 30 more than during the same period in 1942.

• • •

Three rooms have been added to the x-ray department of St. Agnes Hospital in White Plains, and new equipment has been installed for diagnostic and therapeutic purposes.

The War Production Board granted a priority for two diagnostic machines, a superficial treatment machine, and deep therapy equipment for treating cancer and other diseases.

The shockproof therapy equipment has safety devices insuring safety and comfort for patient and operator. The main diagnostic room has a generator with a rotating x-ray tube. The auxiliary radiographic room has a generator with a tilting table and spot film device for radiographs of the gastrointestinal tract. The x-ray department is directed by Dr. Charles Wadsworth Schwartz.*

At the Helm

Governor Thomas E. Dewey has appointed Dr. Edward C. Reifenstein, Sr., Syracuse physician, to a seven-year term as a member of the board of visitors of the New York State Tuberculosis Hospital at Raybrook. He succeeds Dr. George M. Retan, of Syracuse, whose term expired in February.

The Governor also appointed to the board Dr. Henry O. Harding, New York City Negro physician, who is a former president of the North Harlem Medical Society and the Harlem Tuberculosis Committee.*

Dr. Ernest W. Saward has been appointed an Associate in Medicine at Mary Imogene Bassett Hospital, in Cooperstown.*

• • •

Miss Fay Simon is the new superintendent of Monticello Hospital, and Dr. Frank Herzlin is the new intern.

The new superintendent formerly held a supervisory post in the Morrisania Hospital in New York City, where she had previously been on the

[Continued on page 1356]

* Asterisk indicates that item is from local newspaper.

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Natural B Complex



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B COMPLEX SYRUP SQUIBB

An undiluted rice bran extract, with thiamine and riboflavin added. Extract of Rice Bran is official in U. S. P. XII. The Squibb product meets U. S. P. requirements in every respect except that its specific gravity is slightly higher.

One teaspoonful (5 cc.) supplies 1.5 mg. thiamine hydrochloride; 1 mg. riboflavin; 12.5 mg. of a naturally occurring mixture of niacin and niacin amide; 0.75 mg. pyridoxine hydrochloride and 1.4 mg. pantothenic acid. Calories 2.56 per gram.



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Average daily dose of one heaping teaspoonful (10 grams) supplies 5 mg. thiamine; 2 mg. riboflavin; 20 mg. niacin; 1.6 mg. pyridoxine; 5.3 mg. pantothenic acid; 32 calories.



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Each tablet contains 5 grains Natuplex-B together with 1 mg. thiamine hydrochloride; 1.5 mg. riboflavin and 10 mg. niacin amide.

These and other individual and multivitamin products are available from the Squibb Laboratories. Write for the Squibb booklets, "Vitamin B Complex Therapy" and "Squibb Vitamin B Complex Products." Address the Professional Service Department, 745 Fifth Avenue, New York 22, N. Y.

E·R·SQUIBB & SONS

Manufacturing Chemists to the Medical Profession Since 1858

[Continued from page 1354]

staff of the Hospital for Joint Diseases. She is a graduate of the Lebanon Hospital Nursing School, New York.

Dr. Herzlin was formerly a member of the medical staff of the Knickerbocker Hospital in New York City.*

• • •

Dr. John R. Ross has resigned as superintendent of Hudson River State Hospital in Poughkeepsie to become superintendent of Rhode Island State Hospital for Mental Diseases at Cranston, Rhode Island.

• • •

Dr. Sydney McLouth, of Corfu, is in Clifton Springs for a three months' residency in surgery at the Clifton Springs Sanitarium.

• • •

Dr. Helen Dollar and Dr. Martin Lazar have been promoted from assistant physicians to senior assistant physicians at the St. Lawrence State Hospital at Watertown.

• • •

Dr. Charles M. Reid, South Jamaica Negro physician, has been appointed associate visiting physician at Queens General Hospital, the first member of his race to hold such a post in Queens General or any other borough hospital.

He is an honor graduate of McGill University Medical College in Canada, having received his degree in 1911. He was first licensed to practice in Virginia, and remained there until 1926, when he came to South Jamaica.

When Queens General Hospital opened in 1935, Dr. Reid was one of five Negro physicians named to the staff. He was made first assistant visiting doctor in 1941 and has now been promoted to the rank of full associate.

He serves as an examining physician for Local Draft Board 274 and is on the advisory committee on Negro health of the Queens Tuberculosis and Health Association.

Dr. Reid helped organize the Jamaica Branch of the National Association for the Advancement of Colored People and served as its president for seven years.

The doctor is married and has a son in the Army.

Newsy Notes

A program designed to solve wartime nursing problems in New York State has been adopted by the New York State Nursing Council, of which Miss Alta E. Dines is chairman.

The plan called for analysis of nursing needs in each community, increase of nursing power, more equitable distribution of community nursing quotas, provision for civilian as well as military nursing needs, increase in student nurses, reactivation of retired graduate nurses, and work with subsidiaries such as Red Cross nurse's aides and other volunteer assistants.

Local nursing councils in the State number 64, against 17 on Jan. 5, it was reported at the meeting. The councils, with lay and professional representation, will study nursing problems in communities.

They will include professional nurses, physicians, hospital administrators, trustees of hospitals, and members of women's organizations and other groups.

Cooperating will be State and local agencies such as health departments, the State Medical Society, the Emergency Medical Service, and other departments of the State War Council.

All officers of the New York State Nursing Council were re-elected yesterday.*

• • •

In the new Army hospital on Staten Island, Halloran General Hospital, war wounded from all areas of battle are being nursed back to health through the skill of the Army Medical Corps. The hospital, originally designed for the mentally deficient children of New York State, comfortably accommodates 3,000 beds and can make room for more than that if necessary.

Under the supervision of Col. Ralph G. Devoe, M.C., the commanding officer, and his staff, the most advanced treatment available is given to the patients.

In addition to regular hospital care, arrangements are made for entertainment and recreation of convalescents. The goal at the hospital is not only to make the wounded well but also to make them self-reliant and happy.

• • •

The name of Reception Hospital in Saranac Lake has been changed to Prescott House.

• • •

The nursing schools of Flower-Fifth Avenue, Roosevelt, and St. Luke's Hospitals received citations from the Red Cross on May 26 in recognition of the 100% enrollment of their senior classes in the Red Cross Student Reserve.

• • •

Insurance in the Associated Hospital Service is now available to individual physicians. They need no longer join in groups.

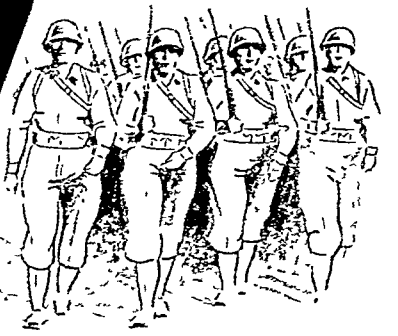
• • •

American transport planes converted into "flying hospitals" after delivering troops and supplies to the front have evacuated more than 30,000 Allied casualties from battle zones in all theaters of the war, Brigadier General David N. W. Grant, air surgeon of the Army Air Forces, revealed at the meeting of the House of Delegates of the American Medical Association in Chicago.*

FIRST AID FOR



V



BURNS

This summer, as never before, physicians will be called upon to treat a large crop of bad sunburn cases and blistered feet (pressure burns).

The civilian as well as the military population will be affected. Office workers and housewives are exposing themselves to the effects of sun and unaccustomed activities—working in victory gardens, replacing the family auto with the use of "shanks' mare."

Effective first aid for these cases is found in

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Health News

Menace of Typhus in Europe

"From reports at hand it appears that so far American military forces in North Africa have escaped typhus, which is still a menace to the civilian population," the *Journal of the American Medical Association* for June 5 said in an editorial on "The Menace of Typhus in Europe." The *Journal* said:

"Of the communicable diseases that may become epidemic in wartime, typhus is of most concern. In his comprehensive summary of the typhus situation in Europe and North Africa, Yves Biraud of the Epidemiological Intelligence Service Health Section of the League of Nations, points out that typhus is on the increase in the countries of eastern Europe in which the disease usually is endemic, in Spain, and in North Africa, and that it has appeared in sporadic forms in regions of central and western Europe hitherto free from the disease. In eastern Europe typhus is not as widespread as at the end of the first world war. In the West Biraud does not regard the danger of typhus serious 'so long as the population continues on the whole to be free from lice,' but increasing economic disorder and destitution may result in spread of the disease.

"The spread of European typhus, which is the only form of typhus now considered, depends on the presence of the virus and its vector, the body louse, in a receptive population. The special means to prevent the invasion and extension of typhus are delousing and vaccination. In delousing, the people who are most exposed to the infestation come first—vagrants, refugees, the poor—but under certain conditions delousing of military as well as civilian communities may be required.

"Biraud has made a valuable study of the respective advantages and indications of antityphus vaccines, killed and alive. Generally speaking, killed vaccines, which are given in three injections, a week or so apart and which act rather slowly, are best suited for the protection of medical and sanitary personnel and in limited outbreaks in regions where the population in general is stable and free from lice; in other words, when rapid protection is not required. But in outbreaks in shifting and lousy populations, in troops and refugees, live vaccines are best because protection is quickly induced by a single injection. In endemic regions preference should be given, if possible, to vaccines of multiple local strains of the virus; in countries free from typhus but threatened, it would be best to use vaccines of virus from the regions whence the invasion may be anticipated. . . . . With both these methods quantities needed for mass vaccination can be produced and both have given good results in the suppression of epidemics in North Africa. Mass vaccination broke the typhus waves in Morocco in 1937–1938 and in Tunis in 1939–1940. In Tunis, where 200,488 vaccinations were made with the mouse virus, not a single case of vaccinal typhus was observed. Biraud concludes that modern antityphus vaccination coupled with delousing can protect Europe against the present menace of epidemic typhus."—*A.M.A. News*

Home Care of Cancer Patients

Problems in the home care of cancer patients and some newer methods of meeting them were presented before the staff and guests of the Visiting Nurses Association recently held at Albany.

One of the speakers, Dr. Morton I. Levin, of the Division of Cancer Control, State Department of Health, said that the care of the advanced cancer patient has long been a difficult problem. Hospitals do not want these patients, and there are very few institutions devoted to their care. The situation has been complicated by the war. At the same time, medical science now offers a great deal in the way of measures to decrease pain, alleviate discomfort, treat metastatic lesions, and to add to the lives of such patients months or even years of comfortable existence.

Procedures which have proved efficacious in relieving symptoms of advanced cancer are:

1. Newer methods for control of local infection, such as the use of zinc peroxide dressings or powdered sulfathiazole.
2. Methods for eliminating malodor from lesions.
3. Roentgen therapy for recurrent cancer.
4. Roentgen therapy for metastases to bones or lungs.
5. Neurosurgery and alcohol injections for relief of pain.
6. Castration or the use of estrogenic hormones for treatment of advanced cancer of the prostate.

Many cancer patients do not receive the benefit of such therapy and, in too many cases, not even ordinary nursing care. Dr. Levin said that a complete solution of the problem is not at hand but that it might be met, to some extent, by providing, in the home, nursing procedures and services which for the most part are now available only in hospitals. Supervision by the attending physician would be required in the use of these procedures, but he would be aided if visiting nurses were trained in their application.—*Health News*

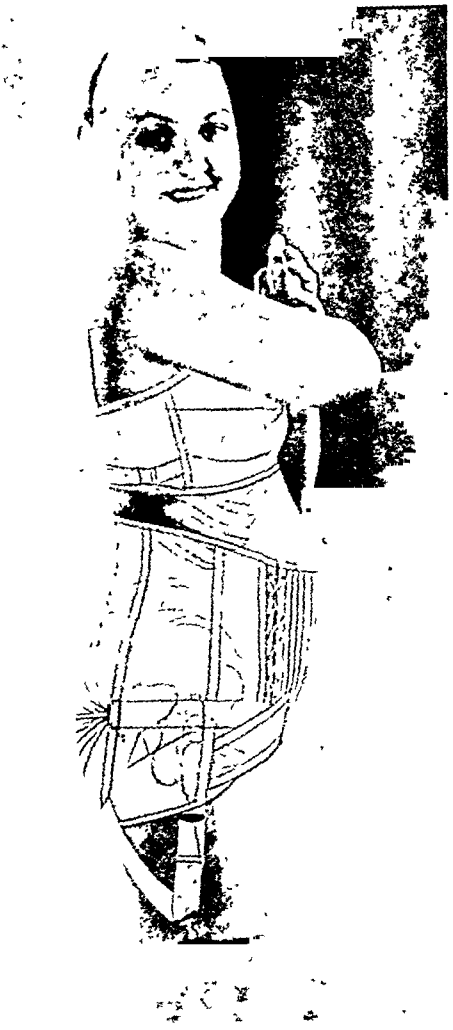
Camps for Workers Must Meet Health Requirements

Anticipating an increase in the number of workers moving to farm areas in the State to assist in the production of food, the State Department of Health warned recently that all camps, including those housing farm laborers, must comply with certain provisions of the State Sanitary Code.

The Code requires that each camp operator must apply to the District State Health Officer of his district for a permit at least fifteen days prior to the date of opening a camp. Permits will be issued only after it has been found, following inspection,

[Continued on page 1360]

WARTIME BOOM IN BABIES



Photograph Camp prenatal support (skeleton indrawn)



Today, more babies are on the way than in an time during the last 20 years! Naturally, there i a corresponding rise in the need and deman for prenatal supports.

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In fact, not a single detail which will add « their clinical value has been neglected.

That these garments successfully measure u to the most stringent clinical requirements i evident—since they carry the approval of man leading gynecologists and obstetricians through out the world.

The Camp series of prenatal supports comprise models suitable for all types of build. Patients are asked to return each month for adjustment of their prenatal supports. This service is given free of charge by all Camp-trained fitters.

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[Continued from page 1358]

that each camp meets the requirements of sanitary construction, equipment, and operation.

The department defines a camp as having one or more tents, vehicles, buildings, or structures, including the grounds on which they are located, maintained as living quarters for the temporary occupancy of any number of persons.

Following the filing of an application for a permit, an inspection will be made by a district sanitary engineer. If the requirements in the code are met, a permit for operation will be issued, but if they are not met a permit may be refused or, if changes can be made quickly, recommendations will be made to the camp proprietor for the necessary changes and a temporary permit will be issued. This permit, however, will be valid for only a short period. When the changes have been completed an unqualified permit will be issued. The inspection will include water supply; milk and food sources, storage, and preparation; sewage disposal; sleeping quarters; kitchen; dining room; stable; waste disposal; reporting of sickness; and other items.

Board of Health Amends Sanitary Code

The New York City Board of Health at a recent meeting amended its Sanitary Code, Section 172, requiring that all carcasses of animals to be sold for consumption as meat in New York City bear the Federal imprint or stamp showing the identity of the slaughterer as required by the United States Department of Agriculture.

The action was taken at the request of the Federal Department of Agriculture, as a cooperative step in efforts to wipe out the "black market" sale of meat in the city.

The Board of Health action brings the entire inspectorial force of the Health Department to the aid of the Federal inspectors in checking wholesale meat cuts being brought into New York. It is intended primarily to provide a close watch on meat supplies coming in from small country slaughterhouses which may be shipping in "black market" meat in violation of their Government quotas. At the same time, the new Sanitary Code provision will permit local prosecution of offenders through the City Magistrates' Courts.

Home Deliveries

It is obvious that there is now and will be for some time to come a need for delivery service in the home. This should be conducted by trained obstetricians or by properly qualified and supervised nurse midwives.

If in some medical schools home delivery service, in addition to hospital experience, is considered by the authorities of the school to be necessary for the adequate training of medical students in obstetrics, then—

1. The service should be so conducted that the standards for care are on a level with those maintained in the hospital connected with the medical school. In order that the standards may be maintained, there should be:

(*a*) Careful selection of cases for home delivery service, based partly on inspection of the home.
(*b*) Supervision of labor and delivery by members of the obstetric staff.
(*c*) Conduct of labor and delivery with aseptic technic.
(*d*) Qualified nursing assistance at the time of labor and delivery.
(*e*) Qualified medical and nursing care of mother and infant in puerperium.
(*f*) Records of morbidity and mortality among mothers and infants, adequate to demonstrate the results of the service.

2. The area covered by the service should be near enough to a hospital with a specialized obstetric service to provide for hospital care in all emergencies.

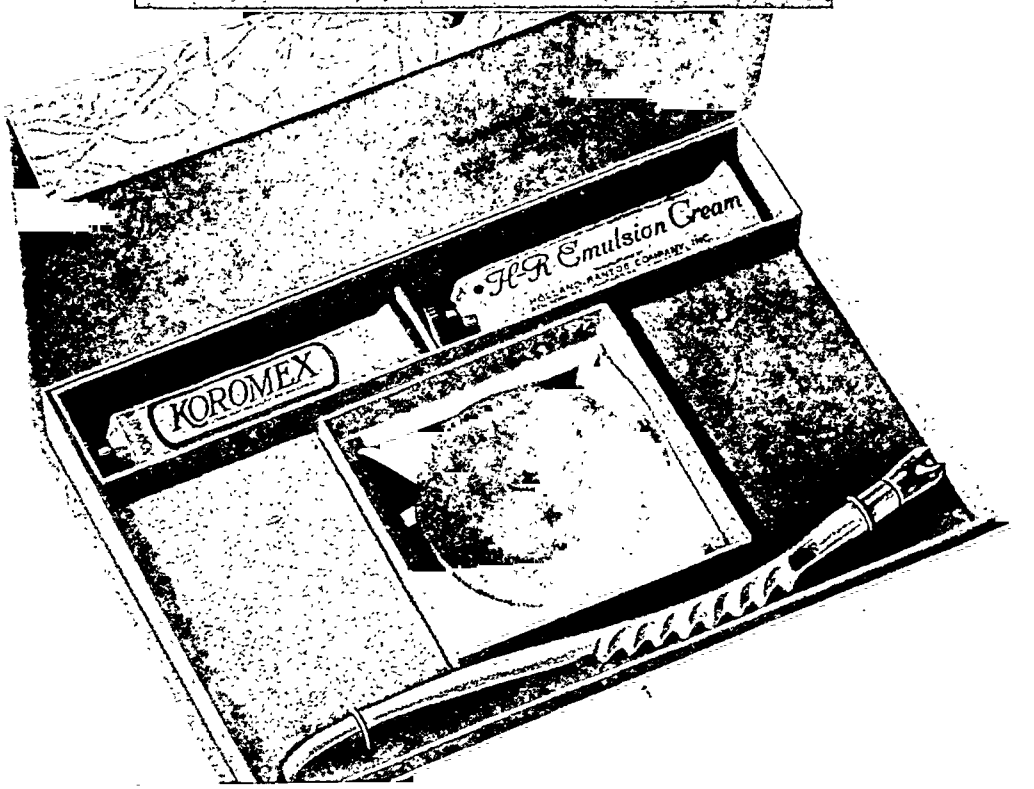
How long it will continue to be necessary to train physicians to conduct deliveries in the home is a matter for speculation. Obviously, the ultimate objective of every community should be to have all maternity patients delivered in hospitals maintaining approved standards for the care of maternity patients, by or under the supervision of physicians trained in obstetrics. Only when this is done can all maternity patients and their infants receive the full benefit of the knowledge available concerning the conduct of labor, the puerperium, and the care of newborn infants. Until it is possible to reach this objective, many deliveries will take place in the patient's home, and medical schools must continue to give the best instruction possible on the conduct of home deliveries.—*The Child*

Typhoid Carriers

A total of 437 typhoid carriers, exclusive of those in state institutions, were under supervision in upstate New York at the close of 1942. Thirty new carriers were added to and 25 were removed from the register during the year. Twenty-two were discovered as a result of epidemiologic investigation of sporadic cases of typhoid, 7 by means of release cultures, and one was discovered accidentally while hospitalized with a bronchopleural fistula.

Of the 25 carriers whose names were removed from the register, eighteen died. One was released from restrictions after the submission of the required number of negative fecal and duodenal specimens following cholecystectomy, while the names of 6 others were removed because of change of residence of the carrier to a community outside the jurisdiction of the Department of Health.—*Health News*

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Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N.Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

RECEIVED

The Practice of Refraction. By Sir Stewart Duke-Elder, M.D. Fourth edition. Duodecimo of 328 pages, illustrated. Philadelphia, Blakiston Co., 1943. Cloth, $4.50.

Medico-Legal Blood Group Determination. By David Harley, M.D. Octavo of 119 pages, illustrated. London, Heinemann, 1943 [New York, Grune & Stratton, Inc.].

First Aid, Surgical and Medical. By Warren H. Cole, M.D., and Lt. Col. Charles B. Puestow, M.C., M.D. Second edition. Octavo of 351 pages, illustrated. New York, D. Appleton-Century Co., 1943. Cloth, $3.00.

Essentials of Industrial Health. By C. O. Sappington, M.D. Octavo of 626 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $6.50.

A Study of Endometriosis, Endosalpingosis, Endocervicosis, and Peritoneo-ovarian Sclerosis. By James R. Goodall, M.D. Octavo of 140 pages, illustrated, including 6 color plates. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $5.50.

Physiology in Aviation. By Chalmers L. Gemmill, M.D. Octavo of 129 pages, illustrated. Springfield, Ill., Charles C. Thomas, 1943. Cloth, $2.00.

Essentials of Syphilology. By Rudolph H. Kampmeier, M.D. Duodecimo of 518 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $5.00.

Physiological Psychology. By S. R. Hathaway. Octavo of 335 pages, illustrated. New York, D. Appleton-Century Co., 1942. Cloth, $2.75.

REVIEWED

Familial Nonreagenic Food Allergy. By Arthur F. Coca, M.D. Octavo of 160 pages. Springfield, Ill., Charles C. Thomas, 1943. Cloth, $3.00.

On the basis of recent investigations on food allergies, the writer of this book suggests the addition of another category to the group of allergic diseases. This category has been given the provisional designation, "Familial Nonreaginic Food Allergy." Specific "tachycardia," an increase in the pulse rate of 20 or more, together with a high maximal pulse rate (90 or more), are offered as reliable criteria of the nonreaginic food-allergic reaction, and were employed to identify the offending foods in 44 cases. The allergic symptoms consisted of headaches of various types, physical tiredness, nervousness, indigestion (including gas, vomiting, and nausea), dizziness, neuralgia, canker sores, etc.

Because most of the case reports lack detailed protocols for long periods of time, the allergist is hampered in his attempt to evaluate this method of diagnosis. The internist will find it difficult to interpret the excellent results because the case histories are extremely brief and clinical data are incomplete.

It is maintained that "familial nonreaginic food allergy" affects a large proportion of the population (60 per cent or more). This is in contrast to the low occurrence (7 to 10 per cent) of reaginic atopy.

The relation of "familial nonreaginic food allergy" to various diseases, such as the common cold, hypertension, dementia praecox, and others, is considered.

This book presents a new point of view which should be interesting to the allergist and the internist. The subject merits further study by other workers.

MAX HARTEN

Obstetrical Practice. By Alfred C. Beck, M.D. Third edition. Quarto of 938 pages, illustrated Baltimore, Williams & Wilkins Co., 1942. Cloth, $7.00.

In the third edition of this standard textbook on obstetrics we have a product that surpasses in excellence its two predecessors. It contains some new material, notably in the chapter devoted t pelvic deformity. In the previous editions operativ obstetrics was somewhat condensed in order to b crowded into a single chapter. In this new volume however, a separate chapter has been devoted t each of the following subjects: "Artificial Inter ruption of Pregnancy," "Methods Used to Haste or Complete the Dilatation of the Cervix," "For ceps," "Version," "Cesarean Section," Destructiv Operations," and "Repair of Lacerations."

In the chapter on cesarean section is a clea description, well illustrated, of the method devised by the author for the administration of local anes thesia—one that has proved itself to be most satisfactory. The index has been carefully revised and contains over three times the number of references that were found in the second edition. The book is highly recommended.

W. A. JEWETT

The Principles and Practice of Medicine. Originally written by Sir William Osler. Designed for the use of practitioners and students of medicine. By Henry A. Christian, M.D. Fourteenth edition. Octavo of 1,475 pages. New York, D. Appleton-Century Co., 1942. Cloth, $9.50.

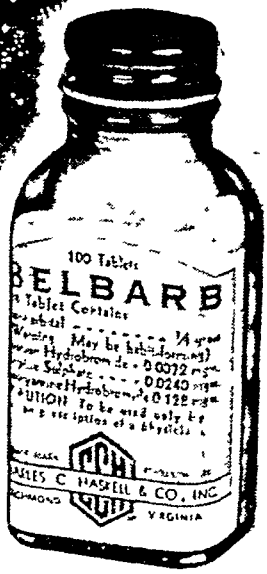
This fourteenth edition is very satisfying. Editor Christian has chosen his new material with good

[Continued on page 1364]

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[Continued from page 1362]

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The reviewer was very glad to see the chapter entitled "Proctologic Nursing Considerations" included in the book. Modern postoperative care of proctologic patients is sufficiently specialized to require a detailed routine for hospital nurses to follow. This is especially important in these days of shortages.

The book is of such size as to make handling easy and the printing could not be better.

A. W. Martin Marino

Constitution and Disease. Applied Constitutional Pathology. By Julius Bauer, M.D. Octavo of 208 pages. New York, Grune & Stratton, 1942. Cloth, $3.50.

The author has brought with him to America the rich clinical experience that led graduate students to seek him out in Vienna, and now in this small

[Continued on page 1370]

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The author designed *Essentials of Proctology* for the medical student, the general practitioner, and the general surgeon. It presents, in condensed form, an exposition of the conditions usually found in the anus, rectum, and sigmoid colon. Diagnosis and hospital as well as office treatment and procedures are emphasized. The work is profusely illustrated.

On the back of the front cover and continued on the fly leaf there is an "Index of Symptoms and Signs" consisting of eleven symptoms and three signs with the presumptive diagnosis following each of them. This index is of value in that its use enables the examiner to suspect the presence of certain lesions. It would be well to emphasize, however, that a diagnosis should never be made without a proper examination. It should further be emphasized that any and all symptoms referable to the anus or rectum may be due to cancer.

The reviewer was very glad to see the chapter entitled "Proctologic Nursing Considerations" included in the book. Modern postoperative care of proctologic patients is sufficiently specialized to require a detailed routine for hospital nurses to follow. This is especially important in these days of shortages.

The book is of such size as to make handling easy and the printing could not be better.

A. W. Martin Marino

Constitution and Disease. Applied Constitutional Pathology. By Julius Bauer, M.D. Octavo of 208 pages. New York, Grune & Stratton, 1942. Cloth, $3.50.

The author has brought with him to America the rich clinical experience that led graduate students to seek him out in Vienna, and now in this small

[Continued on page 1370]

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[Continued from page 1368]

volume he discusses individual constitution as it relates to health and disease.

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Broad, sage, continental observations and teachings appear throughout the book, and, in the spirit of medical research and bedside practice, make the volume very much worth while.

FRANK BETHEL CROSS

Acute Infections of the Mediastinum. By Harold Neuhof, M.D., and Edward E. Jemerin, M.D. Octavo of 407 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $6.00.

The greatest merit of this volume is its originality of presentation, which is based upon the authors' personal experiences in one hundred cases. This does not imply that they have not made themselves fully conversant with the current teachings and literature to which they refer freely. The opening chapter of this volume is devoted to a consideration of the contributions of their predecessors. The second part is a presentation of cases grouped according to cause. From the cases reviewed the authors draw significant conclusions on the causation, symptomatology, clinical manifestations, and management. They discuss the indications for surgical drainage, the approach, and the results thereof. The book is clearly written and presents a practical guide to the surgery of acute infections of the mediastinum. It is a meritorious contribution and is recommended to the notice of the clinician.

LEW A. HOCHBERG

Neurosurgery and Thoracic Surgery. [Military Surgical Manuals, Vol. VI.] Prepared and Edited by the Subcommittees on Neurosurgery and Thoracic Surgery of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Octavo of 310 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Cloth, $2.50.

This book is Volume 6 of the "Military Surgical Manuals." It contains a preliminary chapter on the treatment of gunshot and other head injuries, which covers the subject adequately and, at the same time, presents it in a manner that will be helpful to the general surgeon who is faced on the field of battle with the necessity of dealing with a branch of surgery which in civilian practice is now handled by specialists. The points of emphasis are still, as they were twenty-five years ago, on the importance of operating on severe head injuries within the first twelve hours after the injury occurs, but, at the same time, not undertaking this operation except in a place where the equipment is adequate and where the patient can spend at least part of his convalescence. Furthermore, the tremendous importance of the sulfonamide drugs is adequately indicated.

The section on spinal cord injuries is judicious and discusses the important problems of how to avoid increase of injury to the nervous structures within the fractured spine and of operative and non-operative intervention.

An excellent presentation of the subject of herniated nucleus pulposus is also given briefly. Then follows a detailed chapter on peripheral nerve injuries, which contains not only instructions as to how to handle injuries of the peripheral nervous system but, what is equally as important, how not to handle these injuries. There are valuable charts for the examination of peripheral nerves.

The final section of the volume is an excellent presentation on war surgery of the chest.

LEO M. DAVIDOFF

Extra-Mural Teaching of Preventive Medicine and Public Health. The Medical Bulletin of the University of Cincinnati, Volume IX. By Alfred Korach, M.D. Quarto of 143 pages. Cincinnati, University of Cincinnati, 1942.

Presenting one phase of the teaching of preventive medicine developed at the University of Cincinnati College of Medicine, this volume deals with methods of introducing the student to those community health resources which assist and supplement the efforts of the private practitioner in the treatment and prevention of disease. Written primarily for the benefit of medical educators, it should prove of interest to the graduate physician also in keeping him abreast of some current trends in undergraduate medical instruction.

THOMAS D. DUBLIN

The Inner Ear. By Joseph Fischer, M.D., and Louis E. Wolfson, M.D. Octavo of 421 pages, illustrated. New York, Grune & Stratton, Inc., 1943. Cloth, $5.75.

This is a thorough compilation of the more recent available data on the internal ear, its anatomy and pathology, gross and microscopic. The controversial subject of physiology and neurotology is exhaustively presented and to a degree clarified. Little attempt is made to evaluate the numerous theories underlying known reactions to stimulation of the labyrinth. The text covers localization of central lesions, traumatic and spontaneous. The book is timely in that one of the authors discusses in detail war injuries, based on extensive observations during the air blitz on London. A chapter is devoted to the debatable Ménière's syndome and another to the important subject of the inner ear in aeronautics.

Repetition of subject-matter in many chapters is unavoidable and, in fact, desirable.

Slight confusion is inevitable unless one is acquainted with European nomenclature as it is applied to anatomy and physiology of the internal ear.

Editing of this work represents a labor of love and the authors are to be congratulated for their efficiency.

This volume is recommended for individuals concerned with traumatic surgery, neurology, and neurosurgery as well as for those interested in advanced otology and aviation medicine.

HARRY MEYERSBURG

Understand Your Ulcer. By Burrill B. Crohn, M.D. Octavo of 199 pages, illustrated. New York, Sheridan House, 1943. Cloth, $2.50.

Unfortunately this well-written book by a famous author shows the usual faults connected with a medical book written for laymen. Attempting to clarify a subject which is still one of the most controversial issues in medicine, it would satisfy the patient under the author's care, but would alien-

[Continued on page 1372]

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ate the patient who is being treated by a physician whose opinions might differ quite radically from those expressed by the author. On the whole, we believe that although a layman would be much interested in this book, he would be more confused than helped by it.

A. F. R. ANDRESEN

First Aid to the Injured and Sick. An Advanced Ambulance Handbook. Edited by Norman Hammer, M.R.C.S. Eighteenth edition. Duodecimo of 336 pages, illustrated. Baltimore, Williams & Wilkins Co., 1942. Cloth, $2.00.

This is a well-written and excellently illustrated text on first aid. It is a few steps in advance of the Red Cross volume used in this country.

The first quarter of the work (90 out of more than 300 pages) is devoted to anatomy and physiology that is, we believe, a bit too detailed and too deep for use by first-aiders.

The illustrations throughout are most lucid and very instructive. They are quite numerous as well.

The section on war gases is well presented and comprehensive.

The whole volume reflects the first-hand experience that the British people have had with this broad problem.

The book is highly recommended for advance students in first aid.

PHILLIP E. LEAR

Neurology. By Roy Grinker, M.D. Third edition. Octavo of 1,136 pages, illustrated. Springfield, Ill., Charles C. Thomas, 1943. Cloth, $6.50.

In this third edition, the author has incorporated the various contributions made to the field of neurology since the publication of the last edition. He was assisted by Dr. Norman A. Levy. The book is an exhaustive survey of the subject and truly encyclopedic in its scope. Embryology, neuroanatomy, neurophysiology, and neuropathology are discussed, in addition to the usual orthodox presentation of clinical neurology and methods of treatment. The chapter on brain tumors, written by Dr. Paul C. Bucy, is a thorough presentation of neurology that will appeal to the student, the clinician, and the specialist. It is highly recommended to all practitioners of medicine.

IRVING J. SANDS

The Kenny Concept of Infantile Paralysis and Its Treatment. By John F. Pohl, M.D. Octavo of 366 pages, illustrated. St. Paul, Minn., Bruce Publishing Co., 1943. Cloth, $5.00.

This is the latest and most authoritative book on the Kenny treatment. It is an honest and unbiased statement of facts as observed by Drs. John F. Pohl, Frank R. Ober, and Miland E. Knapp. These men have watched the work under direct supervision of Sister Elizabeth Kenny, and the conclusions drawn by these observers are impartial, convincing, and most encouraging.

Causation, pathology, and other debatable questions of poliomyelitis are not to be found in this work. Here one finds a detailed discussion of the method and mode of treatment of infantile paralysis in accordance with the concept of Sister Elizabeth Kenny as it is being applied at the Elizabeth Kenny Institute in Minneapolis, under direct supervision of Sister Kenny. Very helpful will be the many photographs in chapters 3 and 4, dealing with nursing care and muscle spasm.

HARRY APFEL

A Venture in Public Health Integration. The 1941 Health Education Conference of the New York Academy of Medicine. Octavo of 56 pages. New York, Columbia University Press, 1942 Cloth, $1.00.

Rarely does a physician have the opportunity to review in as brief a form some of the burning questions of present-day medical practice. In 56 brief pages, three eminent health educators have stated clearly what they believe to be some of the fundamental issues facing those engaged in meeting the medical needs of the community. Constructive suggestions are also made as to how health education, in which the private practitioner must play a leading role, may help in solving many of the problems.

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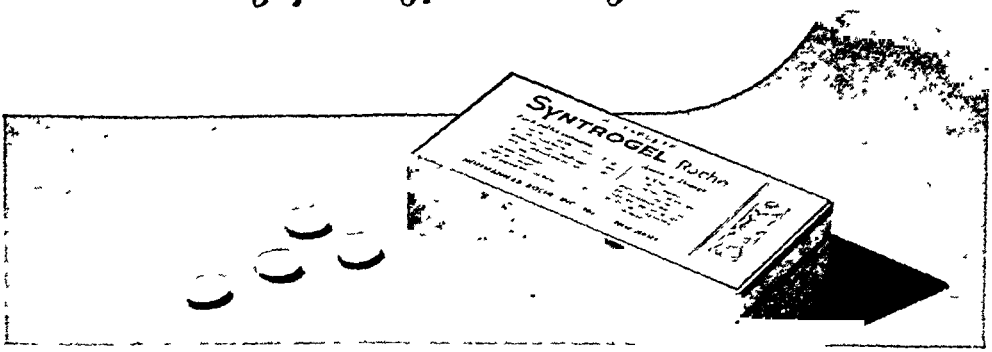
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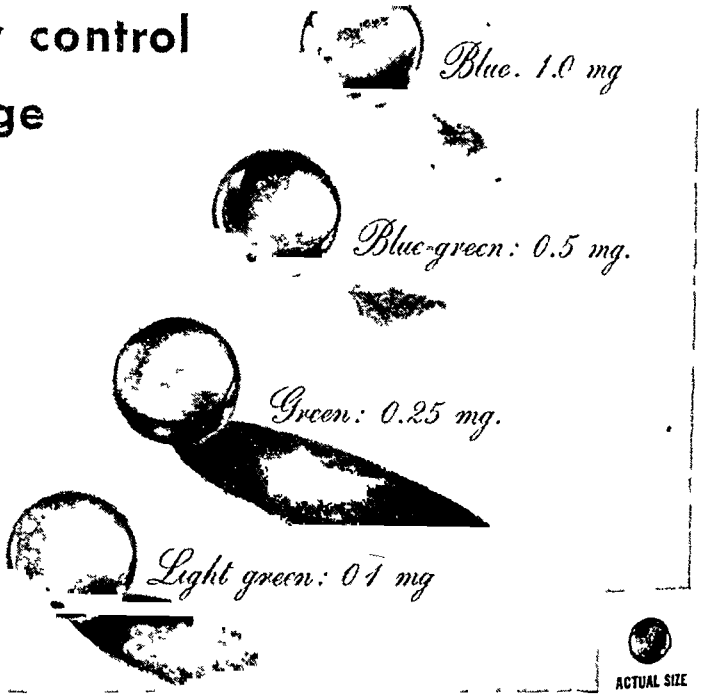
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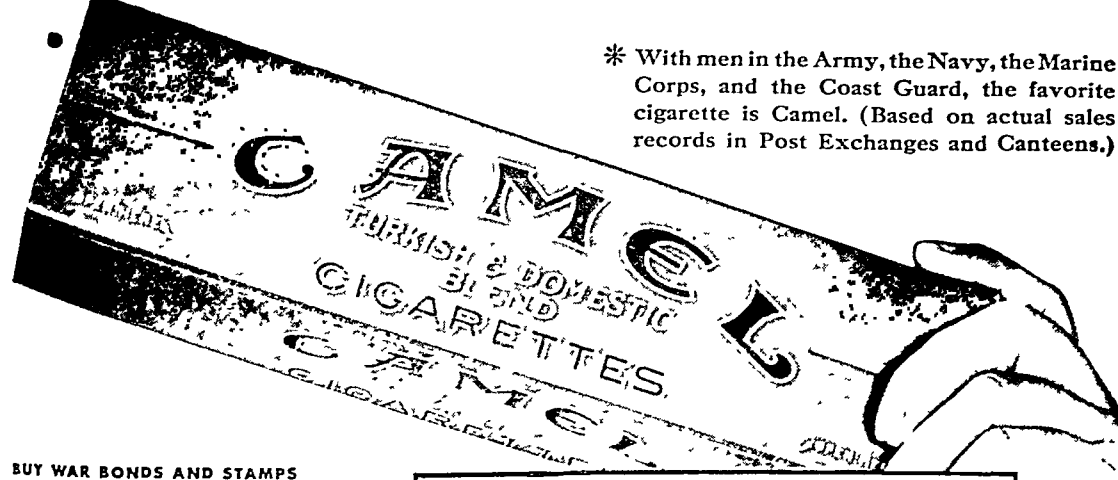
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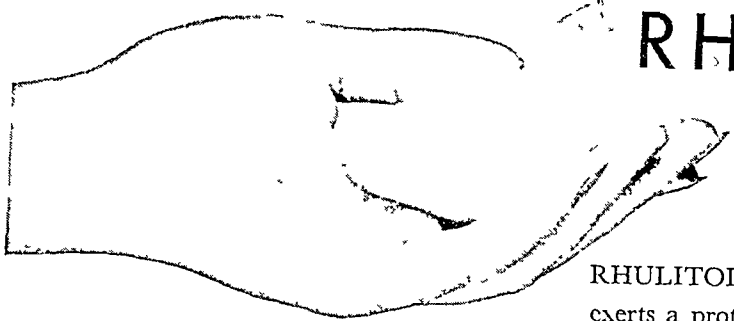
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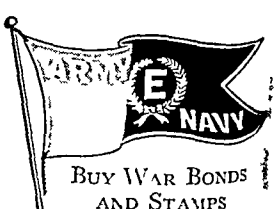
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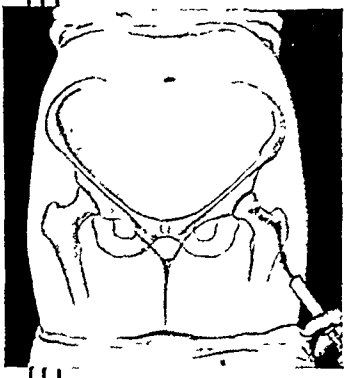
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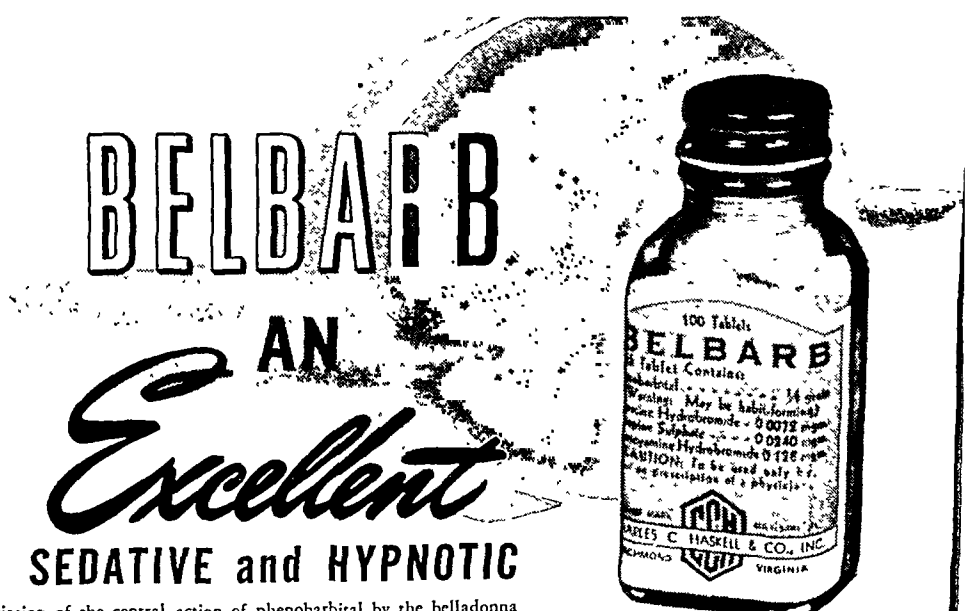
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FARLEY, R. T., SPIERLING, H. F. AND KRAINES, S. H.: A Five-Year Study of Arthritic Patients, Indus. Med., 10:341-352, (August), 1941.

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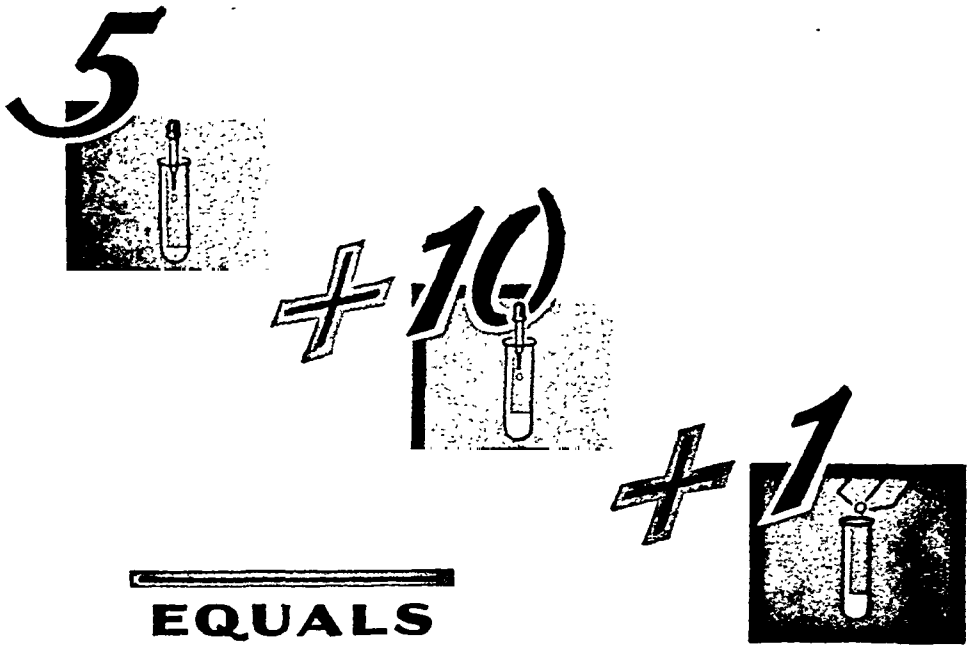
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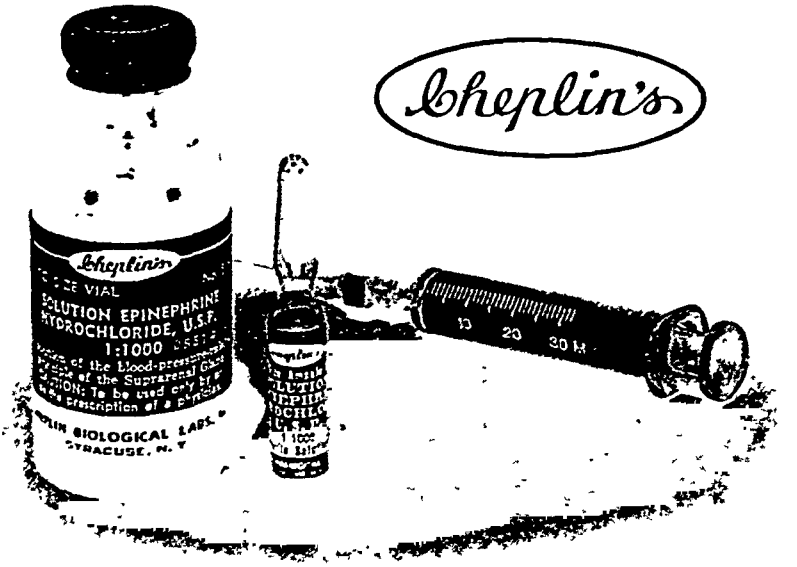
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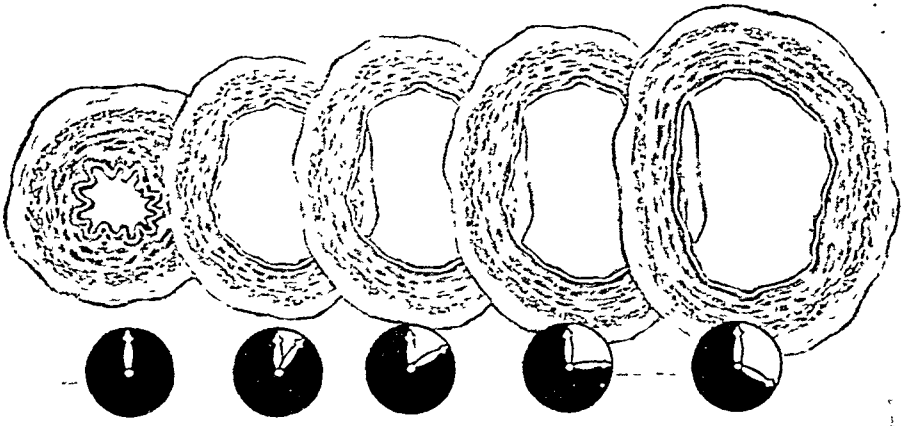
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Sodium nitrite	2 3 grs	32	
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			Hours 1 2 3 4 5 6 7 8 9 10 11 12 13

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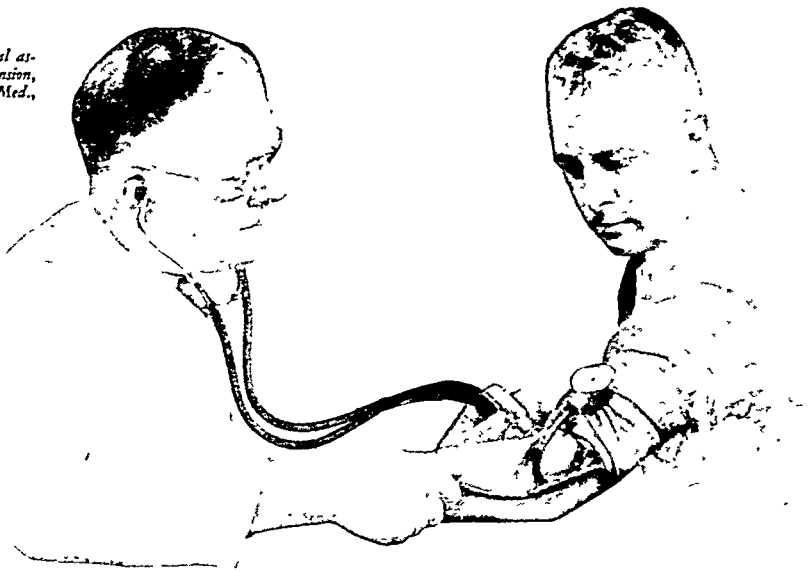
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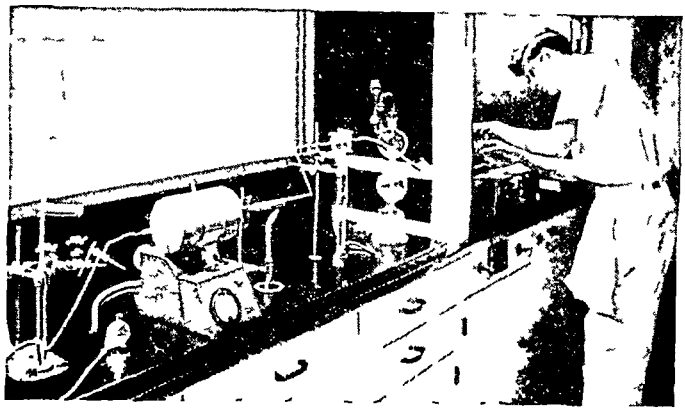
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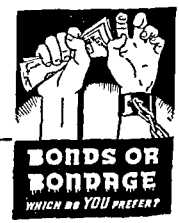
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NEW YORK STATE JOURNAL OF MEDICINE

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VOLUME 43 AUGUST 1, 1943 NUMBER 15

Editorial

Political Medicine

A bill proposing to create a Unified National Social Insurance System (*S. 1161; H.R. 2861*) was introduced in the Senate by Senator Wagner, of New York, for himself and Senator Murray, of Montana, and in the House by Representative Dingall, of Michigan, on June 3, 1943.

"*Senate Bill 1161* makes provision for *free* general medical, special medical, laboratory, and hospitalization benefits for more than one hundred ten million people in the United States.

"It proposes placing in the hands of one man—the Surgeon General of the Public Health Service—the power and authority:

1. To hire doctors and establish rates of pay—possibly for all doctors;
2. To establish fee schedules for services;
3. To establish qualifications for specialists;
4. To determine the number of individuals for whom any physician may provide service;
5. To determine arbitrarily what hospitals or clinics may provide service for patients.

"The provisions are so sweeping that, if enacted into law, the entire system of American medical care would be destroyed. . . .in the opinion of some.

"In its evolution the Wagner-Murray-Dingall bill stems from the National Health Conference of 1937, the Wagner bill which followed that conference, and the report of the National Resources Planning Board. Essentially in its medical aspects it is a compulsory sickness insurance bill and an attempt to translate the proposals of the Social Security Board into a technic of action. Inquiry of reliable sources in Washington indicates the probability that the actual designers and authors of the bill included I. S. Falk, director of the Bureau of Research and Statistics of the Social Security Board of the Federal Security Administration, Mr. Wilbur J. Cohen, technical adviser to the Social Security Board, and Senator Wagner's secretary, Mr. Philip Levy. A statement issued by William Green, president of the American Federation of Labor, says. 'The measure, which is the most comprehensive attempt yet made to establish postwar security in this country, is the fruit of a five-year study of experts on the staff of the American Federation of Labor, which will give the proposed program full sponsorship and support.'"[1]

The powers conferred by this bill on the Surgeon General of the Public Health Service are summarized by the *J.A.M.A.* in part, as follows:

"The Surgeon General of the Public Health Service is hereby authorized and directed to take all necessary and practical steps to arrange for the availability of the benefits provided under this title. . . . .

". . . . The Surgeon General is hereby authorized to negotiate and periodically to renegotiate agreements or cooperative working arrangements with appropriate agencies of the United States, or of any state or political subdivisions thereof, and with other appropriate public agencies, and with private persons or groups of persons, to utilize their services and facilities and to pay fair, reasonable, and equitable compensation for such services or facilities. . . . .

"There is hereby established a National Advisory Medical and Hospital Council to consist of the Surgeon General as Chairman and sixteen members to be appointed by the Surgeon General.

"The Surgeon General shall publish and otherwise make known in each area to individuals entitled to benefit under this title the names of general practitioners who have agreed to furnish services. . . . .

"Services which shall be deemed to be specialist services shall be those so designated by the Surgeon General, and the practitioners from among those included in paragraph 1 above who shall be qualified as specialists and entitled to the compensation provided for specialists shall be those so designated by him as qualify to furnish such specialist services. . . . .

THE RISING CURVE OF PEPTIC ULCER IN WAR

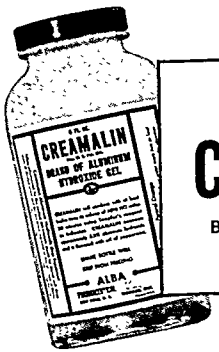
"Peptic Ulcer ranks high as a cause of disability for military service. It . . . leads all other digestive diseases as a cause for discharge from the Regular Army."

Kantor, J. L.: Digestive Disease and Military Service, Jnl. A. M. A., Sept. 26, 1942.

THE increased incidence of peptic ulcer among the armed forces, defense workers and civilians today confronts medicine as a major problem.

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[1] J A M A 122. 600 (June 26) 1943
* EDITOR'S NOTE While this list is not absolutely accurate as of this date, it is the last available information

Willful Carelessness

The willfully careless tuberculosis patient poses a problem in tuberculosis control of no mean proportions. Section 326-a of the Public Health Law is intended to meet this problem by providing proper means of restraint, but there are many factors that make it difficult for local health administrators to enforce provisions of the Public Health Law. With respect to those portions of the law and particularly of this section as it relates to tuberculosis, there are, according to Dr. Robert E. Plunkett, General Superintendent, Tuberculosis Hospitals of the Department of Health, State of New York, sufficient details in the law itself to guide health officers in its administration.

"First," says Dr. Plunkett, "if a complaint is made by a physician as to the possibility of a case of tuberculosis, because of careless habits, et cetera, being a menace to his contacts, the health officer is legally obligated to make such investigations as may be indicated to determine the validity of such complaint. He has many sources of information to assist him in this determination. Among these are the practicing physicians, public health nurses, perhaps the sanatorium superintendent, the clinic administrator, industrial associates, et cetera. While a health officer may for personal or professional reasons hesitate to prescribe the enforcement of this or other health laws, we should not lose sight of the fact that the law is very specific that he, as a public official, like all other public officials, is required to do his job without fear or favor."

The physicians of the state and the Medical Society of the State of New York are increasingly aware of the physicians' responsibilities in relation to tuberculosis and its control and are actively assuming leadership with respect to education of the profession

"Payments from the Trust Fund to general practitioners. . . . shall be made on the basis of fees for services rendered to individuals entitled to benefits, according to a fee schedule approved by the Surgeon General. . . . .

"The Surgeon General may prescribe maximum limits to the number of potential beneficiaries for whom a practitioner may undertake to furnish general medical benefit. . . . .

"The Surgeon General is hereby authorized to establish necessary and sufficient hearing and appeal bodies. . . . .

"The Surgeon General shall publish a list of institutions found by him to be participating hospitals. . . . . Inclusion of any institution upon such list shall, unless and until withdrawn by him, be conclusive. . . . .

"The Surgeon General and the Social Security Board may. . . . determine for any calendar year . . . .that every individual entitled to general medical benefit may be required by the physician furnishing such benefit to pay a fee with respect to the first service or with respect to each service in a spell of sickness or course of treatment.

"The Surgeon General and the Social Security Board jointly shall have the duty of studying and making recommendations as to the most effective methods of providing dental, nursing, and other needed benefits. . . . .

"The Surgeon General, after consultation with the Social Security Board, and with the approval of the Federal Security Administrator, shall make and publish such rules and regulations. . . . necessary to the efficient administration. . . . .

"The term 'laboratory benefit' means such necessary laboratory or related services, supplies or commodities. . . .as the Surgeon General may determine, including chemical, bacteriological, pathological, diagnostic and therapeutic x-ray, and related laboratory services, physiotherapy, special appliances prescribed by a physician, and eye glasses prescribed by a physician or other legally qualified practitioner.

"With respect to inclusion in the list of participating hospitals the Surgeon General may accredit a hospital for limited varieties of cases and may accredit an institution for the care of the chronic sick. . . . ."[1]

The fact that, if enacted, the bill would create a structure of political medicine at a cost of $3,048,000,000 yearly would mean, at least for the present, "deductions from many workers' wages of 20 per cent for income tax, 10 to 25 per cent for War Bonds, 12 per cent for social security, and such other special deductions as are already made in individual plants."[1] Since the bill evidently has the support of the American Federation of Labor, according to the statement of its president, at least a small portion of American labor may be assumed to be willing to pay the cost of the political enslavement of American medicine. We await, however, the opinion of the so-far silent majority of workers.

Government in this country must still be by consent of the governed. When that principle is abandoned or abridged, there is little left to fight for, or to live for. What the people want they can get by the orderly process of the exercise of free speech, the enjoyment of a free press, and the proper use of the ballot. We do not for a moment believe that the people of the United States want political medicine under the Surgeon General of the Public Health Service or any of the alphabetical agencies. Congress is now in recess. Legislators are at home. *S. 1161* cannot be considered until the Congress reconvenes in September. Now is the time for all who want a free practice of civil medicine in this country to fight for it. The exigencies of war have all but turned the system of medical education over to the War and Navy Departments for the duration, of necessity. Is it necessary or desirable to place the practice of civilian medicine under the Surgeon General of the Public Health Service, lock, stock, and barrel? To do so would be to betray a trust reposed in us by those of the profession in the services who are prepared to give the last full measure of devotion. We shall not betray that trust.

Let every physician in the State of New York communicate at once with his Senators,

Robert F. Wagner, 120 Broadway, New York, N.Y.
James M. Mead, 79 Ideal Street, Buffalo, N.Y.

and with his representatives,

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PHYSICAL THERAPY IN PERIPHERAL NERVE INJURIES

RICHARD KOVÁCS, M.D., New York City

INJURIES to peripheral nerves in civil life are so infrequent, according to Pollock,[1] that no one individual has been able to gather enough personal material to make a profitable clinical investigation. Most of our present-day clinical routine in treating these cases dates back to World War I, and it must also serve as a basis for taking care of the casualties of the present war. Tables 1 and 2 show the percentage of peripheral nerve injuries and the order of their frequency in World War I:

TABLE 1.—PERIPHERAL NERVE INJURIES IN WORLD WAR I

	Percentage of Total Casualties	Percentage of Traumatism to Extremities
American Base Hospitals	4.5	14–16
French		18
German	1.5–2	

TABLE 2.—ORDER OF FREQUENCY OF PERIPHERAL NERVE INJURIES IN WORLD WAR I*

	U. S. Army	German Army
Total number	2,347	3,963
Ulnar	569	742
Musculospiral	529	936
Median	433	800
Sciatic	349	523
External popliteal	283	
Peroneal		183
Tibial		112
Brachial plexus	147	
Axillary		82
Musculocutaneous		71

These figures demonstrate that nerve injuries occur far more commonly in the upper extremity and that those of the musculospiral, ulnar, and median nerves are of major significance. Pollock states that of combination injuries those of median and ulnar nerves are the most common, while the radial and ulnar nerves are seldom injured in a combined lesion.

The author's experience in treating nerve injuries is chiefly derived from his early work at the Reconstruction Hospital following World War I. In three successive years the number of peripheral nerve injuries seen there was as follows: 119 in 1921, 90 in 1922, and 60 in 1923. In contrast, the average yearly number of cases seen in the recent fifteen-year period at the New York Polyclinic Hospital was from 30 to 40.

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 4, 1943

* American figures relate to cases present in U. S. General Hospital No. 10, on May 1, 1919.[2] German figures were taken from Foerster's report.[3]

Changes Following Nerve Injury

Traumatization of one or more nerves may be caused by a projectile, cut, blow, wrench, gradual compression, friction, or stretching; it may consist of a bruise, laceration, or complete severance, it may occur at the time of the original injury or several hours, weeks, or months after this injury. The microscopic changes and the coincident or subsequent syndromes will vary according to the extent of the trauma and its circumstances.

There are immediate or gradual loss of function in the affected parts, sensory changes, and typical posture. Histologically, in the distal part of the injured nerve, total or partial degeneration of the axis cylinder and muscle sheath occurs, while the affected muscle first shows fibrillation. Later its fibers become pale, shrink in size, and, if unsupported, stretch indefinitely. Coincidentally, typical changes in the electric excitability of the nerves and muscles occur, and there are also characteristic chemical changes in the muscles. Subsequently, the other soft parts, joints, bones, and tendons suffer from lack of nutrition and may develop adhesions, faulty positions, trophic ulcers, and other pathologic conditions. In certain partial and irritative lesions, dense fibrosis and muscle spasm develop. In neglected cases the muscles ultimately degenerate into fibrous tissue and fat.

Nerve Regeneration and Operative Treatment

In every nerve injury there is a spontaneous tendency for recovery by down-growth of axons from the central end of the nerve as long as the two ends remain in close approximation. The rate of growth of the axis cylinder is estimated to be 1 to 2 mm. per day. It varies in different nerves and, according to Tinel,[4] it is greatest in the radial, musculocutaneous, and external popliteal, while in the median and ulnar it is often slow and incomplete. Pollock states that if there is no evidence of regeneration from four to five months after complete paralysis of the radial and peroneal nerves, surgical exploration should be performed, while in case of complete paralysis of the ulnar nerve the fifth month may be considered the maximum time to wait for recovery.

There is no electrical or other test available which will ascertain whether or not there is a separation of nerve fibers to such an extent that spontaneous regrowth is possible. In case of

and of the public. For this reason a better understanding of the operation of the Public Health Law is imperative.

Lower court judges may commit a recalcitrant or willfully careless patient to a tuberculosis hospital in cases where the evidence indicates that the patient may be a menace. The law is very specific in making provision for such cases. "Moreover," says Dr. Plunkett, "this law is perfectly clear in its requirement that the patient adjust himself to the institutional environment and obey the rules. If the patient does not obey the rules, the law contains a provision whereby the superintendent may place the patient apart from other patients, and I would assume that a single room would be suitable for this purpose, and the superintendent may also 'restrain' such patient. This should not be interpreted as being physical restraint, or the installation of iron bars surrounding the patient. In actual practice, by taking the patient's clothes away from him reasonable restraint is secured. If the patient continues to be troublesome, the superintendent may and should order the patient returned before a magistrate and such magistrate under this same provision of the law has the authority to commit such a patient to an institution, or jail, ordinarily used for the commitment of persons guilty of disorderly conduct. The question has been raised by several men of the inadequate isolation facilities in jails. As a matter of fact, I wonder whether any better isolation facilities prevail than in jails or prisons. In most instances, the commitment of recalcitrant patients to a jail for a few days might be the very prescription which would have a salutary effect psychologically upon the patient, and perhaps a day or two of isolation and bread and water might make him amenable to reasonable compliance with medical direction and supervision. The claim has been made that many jailers, or sheriffs, do not like to take such patients. As a matter of fact, I do not know of any provision in any law which gives a sheriff the privilege of selecting what kind of 'guest' he may have in his jail or prison."

In a five-year period, ending December, 1942, "there was a total of 17,500 patients admitted to state, county, and city tuberculosis hospitals in upstate New York. Legal proceedings were initiated in 106 cases, of which 58 were committed to sanatoria and 5 to jail. This is but a fraction—and a very small fraction at that—of the entire number of patients introduced to the hospital phase of tuberculosis control. . . . .

"This problem may be defined in another manner which also presents a challenging picture. In the past five years during which 106 cases had legal procedures initiated, about 25,000 new cases of tuberculosis were reported. Of these, approximately 20 per cent were in the minimal stage of their disease. Assuming that most of the balance, or 80 per cent of these 25,000, had for varying periods of time a positive sputum, there is no denying that from the standpoint of achieving the optimum in early diagnosis we have a long way to go.

"It is my impression, therefore, that the Public Health Law is adequate from the standpoint of prosecuting the recalcitrant and careless tuberculous patient; that the use of this law as a threat, if and when we have exhausted all of our resources of education, guidance, and assistance, is extremely valuable. However, even a superficial study of the tuberculosis problem makes it apparent that our greatest need is an extension of public health knowledge, in the field of lay education, as well as medical education."

In carrying on this educational program, and particularly as it applies to health education in tuberculosis, it is evident that new methods of personalizing the individual patient or family problems that arise in relation to this disease must be found. It is evident also that more time on the part of specialized physicians must be devoted to the appraisal of broad social problems which often are more important and more decisive as far as the behavior of the patient or the family is concerned than the classical definition of rales or x-ray shadows. If the Public Health Law is adequate to control the willfully careless patient, there yet remains much to be done along the lines of cooperative educational endeavor to reach those in the minimal stages of the disease. Successful public health education should surely minimize the number of cases in which the Public Health Law must serve as a last resort.

PHYSICAL THERAPY IN PERIPHERAL NERVE INJURIES

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INJURIES to peripheral nerves in civil life are so infrequent, according to Pollock,[1] that no one individual has been able to gather enough personal material to make a profitable clinical investigation. Most of our present-day clinical routine in treating these cases dates back to World War I, and it must also serve as a basis for taking care of the casualties of the present war. Tables 1 and 2 show the percentage of peripheral nerve injuries and the order of their frequency in World War I:

TABLE 1.—PERIPHERAL NERVE INJURIES IN WORLD WAR I

	Percentage of Total Casualties	Percentage of Traumatisms to Extremities
American Base Hospitals	4.5	14–16
French		18
German	1.5–2	

TABLE 2.—ORDER OF FREQUENCY OF PERIPHERAL NERVE INJURIES IN WORLD WAR I*

	U. S. Army	German Army
Total number	2,347	3,963
Ulnar	560	742
Musculospiral	529	936
Median	433	800
Sciatic	349	523
External popliteal	283	
Peroneal		183
Tibial		112
Brachial plexus	147	
Axillary		82
Musculocutaneous		71

These figures demonstrate that nerve injuries occur far more commonly in the upper extremity and that those of the musculospiral, ulnar, and median nerves are of major significance. Pollock states that of combination injuries those of median and ulnar nerves are the most common, while the radial and ulnar nerves are seldom injured in a combined lesion.

The author's experience in treating nerve injuries is chiefly derived from his early work at the Reconstruction Hospital following World War I. In three successive years the number of peripheral nerve injuries seen there was as follows: 119 in 1921, 90 in 1922, and 60 in 1923. In contrast, the average yearly number of cases seen in the recent fifteen-year period at the New York Polyclinic Hospital was from 30 to 40.

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* American figures relate to cases present in U. S. General Hospital No. 10, on May 1, 1919.[2] German figures were taken from Foerster's report.[3]

Changes Following Nerve Injury

Traumatization of one or more nerves may be caused by a projectile, cut, blow, wrench, gradual compression, friction, or stretching; it may consist of a bruise, laceration, or complete severance, it may occur at the time of the original injury or several hours, weeks, or months after this injury. The microscopic changes and the coincident or subsequent syndromes will vary according to the extent of the trauma and its circumstances.

There are immediate or gradual loss of function in the affected parts, sensory changes, and typical posture. Histologically, in the distal part of the injured nerve, total or partial degeneration of the axis cylinder and muscle sheath occurs, while the affected muscle first shows fibrillation. Later its fibers become pale, shrink in size, and, if unsupported, stretch indefinitely. Coincidentally, typical changes in the electric excitability of the nerves and muscles occur, and there are also characteristic chemical changes in the muscles. Subsequently, the other soft parts, joints, bones, and tendons suffer from lack of nutrition and may develop adhesions, faulty positions, trophic ulcers, and other pathologic conditions. In certain partial and irritative lesions, dense fibrosis and muscle spasm develop. In neglected cases the muscles ultimately degenerate into fibrous tissue and fat.

Nerve Regeneration and Operative Treatment

In every nerve injury there is a spontaneous tendency for recovery by down-growth of axons from the central end of the nerve as long as the two ends remain in close approximation. The rate of growth of the axis cylinder is estimated to be 1 to 2 mm. per day. It varies in different nerves and, according to Tinel,[4] it is greatest in the radial, musculocutaneous, and external popliteal, while in the median and ulnar it is often slow and incomplete. Pollock states that if there is no evidence of regeneration from four to five months after complete paralysis of the radial and peroneal nerves, surgical exploration should be performed, while in case of complete paralysis of the ulnar nerve the fifth month may be considered the maximum time to wait for recovery.

There is no electrical or other test available which will ascertain whether or not there is a separation of nerve fibers to such an extent that spontaneous regrowth is possible. In case of

penetrating injuries the surgeon must decide on purely anatomic considerations whether to make an immediate nerve suture or not. Even immediate nerve suture, however, does not prevent subsequent nerve degeneration. In the majority of suspected incomplete nerve lacerations the tendency now is to wait and to make an exploratory operation only if (1) there is total loss of function for two months or more in an area exclusively supplied by a nerve, or (2) if recovery is extremely slow or there is a relapse, or (3) if there is a palpable neuroma at the site of the injury of a nerve, the function of which is seriously disturbed, or (4) if there is severe, persistent, and intractable pain.

Neurosurgeons emphasize the fact that while operative procedures in nerve injury make it possible for nerves to regenerate, they will not serve to restore function. It is conceivable that perfect regeneration might occur in the nerve and yet an extremity be functionless because of interphalangeal fibrosis, retraction of capsular ligaments, marked atrophy and fibrosis, shortening of muscles, spasms of muscles, and akylosed joints. This explains the importance of the early institution and systematic application in all nerve injuries of such measures which will tend to maintain nutrition and function in the affected parts.

Role of Physical Therapy

All surgeons who have treated large numbers of nerve injuries emphasize the fact that physical treatment is of immense value in both nonoperative and postoperative treatment.[1,5,6] Electrical testing is indispensable as an adjunct to diagnosis and follow-up of nerve injuries, with the large variety of physical treatment measures serving to stimulate circulation, maintain nutrition, conserve the function of muscles, prevent their overstretching, prevent adhesions and deformity from shortening of muscles, ankylosis of joints, and in the later stages to re-educate muscle function. The anatomic regeneration of the nerve itself can be assisted only indirectly by improvement of the circulation and nutrition.

The official *U.S. Army Report on Physical Reconstruction*,[2] issued at the end of World War I, outlines the duties of the physical therapy department in cases of nerve injuries as follows: "In the physiotherapy treatment of nerve injury cases it is essential that the director of physiotherapy make a clinical examination, together with a brief history. The following notations should be included on a suitable clinical record form: cause and date of injury; date of healing of wound; time of appearance of paralysis in relation to injury; treatment up to present time, including surgical measures; muscle groups paralyzed; area of sensory impairment; degree of atrophy; extent of fibrosis; presence of trophic ulcers; vasomotor changes and neuromata; formation on the 'D.T.P.' (distal tingling on percussion); measurement of girth of affected limb as compared with the opposite or normal limb, and measurements with suitable protractors of any limitation of joint mobility, if such is present. The electrical reactions should be taken, following which the specific treatment should be outlined, with proper instructions to the aide to whom the case is referred. A report is then sent to the surgeon of the findings of the electrical reactions, stating in terms of pathology the condition of the nerve as interpreted from the reactions, and the outline of treatment which the patient will receive. A monthly progress note and report to the surgeon is in order, with special reference to any material changes in electrical reactions, return of sensory or motor functions, progressive advancement of the D.T.P., and the like. The practice of personal consultations with the surgeon who has charge of the patient can well be emphasized."

Electrodiagnosis

The basic change in electrical reactions in the case of full paralysis is the typical R.D., or reaction of degeneration. The injured nerve does not respond to any form of electrical stimulation, while the affected muscles, because of the gradual process of degenerative change in their substance, cease to respond after the eighth day to a short electric stimulus (as furnished by the faradic current) but continue to respond, although sluggishly, to the longer stimulus of the make and break of a galvanic current. The occurrence of the reaction of degeneration signifies a separation—anatomic or physiologic—between a muscle and its trophic center and, therefore, may mean any of the following: complete section of the nerve, compression due to callus, degeneration of nerve after interstitial sclerosis (neuroma, hypertrophic interstitial neuritis), abolition of function of the trophic center in the spinal cord due to a lesion in the anterior horns (poliomyelitis, syringomyelia, etc.) or, finally, alteration of the peripheral nerve endings owing to toxic lesions. The presence of R.D. serves as an important guide in diagnosis and prognosis in diseases or injuries of the peripheral nerves, but it cannot determine whether the nerve has been divided or not, as already stated. On the other hand, since functional, hysterical paralyses and paralyses of cerebral origin are never accompanied by important disturbances of the electrical reactions, the absence of R.D. serves as important evidence in determining malingering or functional paralysis and in differentiating them from other

conditions. "Absolute" reaction of degeneration, consisting of total lack of response of the nerve or muscle to any electric stimulation, implies that the continuity of the nerve has been completely destroyed and that muscle tissue has been replaced by fibrous and fatty tissue. Prognosis for recovery is hopeless in these cases.

The classical faradic-galvanic test serves, however, only as a qualitative test. For measurement of the strength of current needed for stimulation, and for more exact prognosis and follow-up charting, the newer methods of condenser testing and chronaxie measurement furnish very desirable means. Testing by *condenser discharges* is based on the fact that the discharge of a condenser through a constant resistance varies in duration according to the capacity of the condenser. With a set of condensers of various capacities it is possible to obtain currents whose total duration varies from $^1/_{2100}$ to $^1/_{20}$ second. Instead of a long description of the type of response, a simple numerical equation (from 0.01 to 10 microfarads) is available and serves as a basis of comparative charting. In *chronaxie* testing, a current intensity of a known contractile effect upon an individual muscle or nerve is applied. The difference in time necessary to get a contraction is the only variable factor, and this can be accurately observed and recorded. The unit of measurement is the sigma, representing $^1/_{1000}$ of a second, and the results are recorded in decimal figures as in condenser testing. The application of these refined tests requires, on the other hand, special equipment, well-grounded technic and a great deal of time; hence for quick determination of the state of nerves and muscles, the classical faradic-galvanic method serves still as the simplest aid to the initial clinical examination.

Physical Treatment Measures

For physical treatment of nerve injuries a fairly large variety of treatment measures is available. However, their skillful employment requires painstaking institutional care or a well-equipped specialist's office. Nerve injuries as a rule cannot be treated either safely or efficiently in the office of the average general practitioner. Table 3 shows the variety of physical treatment measures and their object.

TABLE 3.—PHYSICAL TREATMENT MEASURES IN NERVE INJURIES

Form	Object	Period of Use
Splinting	Prevention of deformity	From beginning
Heating	Improvement of circulation and nutrition	From beginning
Electric muscle stimulation	Preserve functional capacity of muscles	From beginning
Passive movement	Prevent fibrosis and contractures	From beginning
Massage	Aid circulation, improve nutrition	From beginning
Active exercise	Re-education of muscle function	In later period
Occupational therapy	Hasten muscular recovery	In later period

Splinting.—Splinting is a measure of primary importance for maintaining the condition of paralyzed muscles and assuring a position of anatomic rest and complete relaxation of all paralyzed muscles. It will also prevent shortening of their antagonists. Splinting must be maintained until signs of voluntary motion appear, but it should not be kept up indefinitely, as prolonged immobilization in itself will cause periarticular joint changes and muscle atrophy. Many patients have been incapacitated by the fibrosis which has resulted from the prolonged and uninterrupted use of splints. Splints must be simple, light, easily applied, and easily removed.

Thermal Measures.—The object of thermal measures is to improve nutrition and relax muscles and prepare the limb for further treatment. The most convenient and safest measure for this purpose is the hot whirlpool bath, at a temperature of 100 to 105 F., in which the affected extremity should be submerged for at least half an hour. It combines sustained heat with gentle friction and under this combined action the previously cold, clammy, and often tender limb becomes warm, red, and painless. When the whirlpool bath is not available, a heat lamp or a nonluminous infrared generator may be applied for half an hour, at a distance of comfortable toleration. Because of the frequent prevalence of disturbed sensation, impaired circulation, and other trophic changes, all heat measures must be applied very cautiously in order to avoid the production of slowly healing burns. For the same reason the use of diathermy in these cases should be reserved for expert hands. It has been argued that diathermy exerts a more efficient heating effect in extensive muscle atrophy and that in early cases it may retard or arrest muscle fibrillation which, according to Langley,[7] always follows severance of the nerve and is the cause of muscle atrophy. Short wave diathermy is best applied with the inductance cable wound around the extremity and kept up for thirty minutes at a rate of moderate heating. Any method of heat treatment should be applied systematically, preferably daily, to accomplish the best results.

Electric Stimulation.—Electric muscle stimulation of the paralyzed muscles is an important standard measure of early physical treatment. Its rationale and the form of current most suitable have been subject to much controversy. When muscles are fully paralyzed and are unable to do

any active work, it would seem evident that a method which enables muscles to maintain part of their contractility and their nutrition is a desirable one. Electrical stimulation is the only known means for this purpose and its value is being attested by both clinical and experimental evidence. A recent editorial in the *Journal of the American Medical Association*[8] recalls that the earliest experimental work to prove the importance of electric stimulation in maintaining the nutrition of a muscle deprived of its nervous influence was performed over a hundred years ago, in 1841, by John Reid,[9] a young lecturer on physiology at the University of Edinburgh. The original object of his investigation was to settle the controversy over whether the property of muscle contractility is inherent in the muscle itself or is derived from the nervous system. In these experiments, the spinal nerves were cut across on four frogs, and the muscles of one of the paralyzed limbs were daily exercised by a weak galvanic battery, while the muscles of the other limb were allowed to remain quiescent. This was continued for two months, and at the end of that time the muscles of the exercised limb retained their original size and firmness and contracted vigorously, but those of the quiescent limb had shrunk to at least one-half of their former bulk and presented a marked contrast with those of the exercised limb.

Clinical experience in the treatment of the large number of cases of the war injured has amply established the value of electric muscle stimulation in peripheral paralysis. Pollock[1] states: "Electrotherapy serves to conserve vitality, prevent complete atonia, and increase the contractility of paralyzed muscles." Souttar and Twining[5] state: "Were we limited in the treatment of peripheral nerve injuries to one method of treatment and had nothing but the muscle to consider we should ourselves prefer electrical stimulation to all other methods." On the other hand, some orthopaedic specialists doubt any value of electrical muscle stimulation in paralysis and strongly voice their conviction that voluntary muscle exercise is the most desirable form of activity and no other form of exercise can have the same physiologic value. Experimental evidence is being cited that electrical stimulation cannot retard atrophy and degeneration of denervated muscle and that the degree of regeneration of the peripheral nerve is not influenced by physical measures (Chor *et al.*[10]). Tower[11] maintains that because the atrophy of denervated muscles is due to a continuous fibrillation, leading to exhaustion of the muscle, electric stimulation does not appear rational.

In confutation of such doubts, very recent experimental work has again corroborated the classical observations of Reid. Fischer[12] has shown that the suitable type of stimulation is effective in increasing the size of muscle fibers and their metabolic capacity; Gutmann and Guttmann[13] have demonstrated that electric stimulation accelerates the return of the muscle to its initial volume after reinnervation and possibly prevents atrophy, while Liebesny[14] proved that such stimulation can produce response even in a completely fatigued muscle. Finally, Hines[15] concluded that electrical stimulation to the point of overstretching and even local fatigue does not appear to be detrimental to any phase of neuromuscular regeneration. Thus, on the basis of extended clinical employment as well as on seasoned experimental evidence, the case still stands for the judicious employment of electric stimulation in peripheral paralysis as part of a well-rounded routine of physical treatment. In addition to the actual physiologic effect, the influence of systematic electric treatments on the morale of the patient must also be considered.

There is some controversy also concerning the most desirable form of electric stimulation and its extent. Since fully paralyzed muscles do not respond to the short impulse of a faradic current, this current is of no value in these cases. Active stimulation can be produced by the slow (galvanic) sinusoidal current. This consists of a slow surge of a galvanic current in one direction, followed by a similar one of the opposite polarity. Because of its effectiveness and relative painlessness, many clinicians, including the author,[16] prefer the slow sinusoidal current. Others, including Pollock, consider the make and break of the ordinary galvanic current (interrupted galvanism), although it is more painful and abrupt, just as effective. In recent years stimulation by a series of condenser discharges has been extolled abroad because of the possibility of affecting selectively the paralyzed muscles and leaving the normal ones unaffected (Turrell[17]). These observations have been corroborated here by Liebesny.[14]

In proceeding with the technic of electric stimulation, the first step is to warm the area of the paralyzed muscles to be treated. The muscles must be placed in a relaxed and supported position where they do not have to contract against gravity. The usual technic employs individual muscle stimulation, using a small disk electrode over or near the motor point—which is usually displaced distally—and a large dispersive electrode in a suitable location. In very weak muscles the bipolar method may be employed first, with two disk electrodes over either end of the muscle belly. This prevents spreading of the strong current to neighboring normal muscles and the misleading effect of such response. No vigorous contractions are to be elicited at any

time, for paralyzed muscles may get quickly exhausted. Harpuder[18] points out that as abnormal fatigability of the motor synapse and lack of energy material in the muscle are physiologically characteristic of denervation, strong stimulation of long duration requires caution. One should begin in early cases with two or three contractions daily to each muscle and gradually increase this number to thirty or forty per session. After many weeks or months of systematic daily stimulation there comes the first indication of the return of voluntary motion in one or more of the paralyzed muscles. This is proof that the nerve trunk and the motor endplate have regenerated. Response to the faradic current returns about this time or, as a rule, somewhat later. One must be careful not to replace the slow sinusoidal too quickly by the surging faradic current, for recovering muscles are sensitive toward more exhausting exercise and may be easily tired out.

Massage.—Massage as an aid to circulation and for the improvement of nutrition is a useful part of the routine physical treatment. So far as the prevention of muscle atrophy is concerned, massage is only of slight benefit. As a matter of fact, according to Mennell,[19] heavy massage is transmitted to the blood vessels and may cause paralytic dilatation. Massage should be always preceded by a thermal measure and administered to the well-supported and completely relaxed extremity. It should begin with rhythmic superficial stroking and continue with gentle kneading of the skin and of any contracted muscles, with friction over ankylosed joints. The average massage treatment should take from ten to twenty minutes.

Passive Movement.—Suitable manipulation of joints and stretching of muscles in peripheral nerve injuries is of even greater importance than routine massage; however, it is best carried on in conjunction with massage. Contractures and adhesion of joints, muscles, and tendons are due to shrinkage of newly formed connective tissue. Introductory heating and massage tend to soften this tissue and to promote its absorption, while gentle manipulation serves to stretch it and slowly free it. Such manipulation will also enable normal joints to keep active and increase the range of motion in those which already have become impaired. In manipulating a joint it is better to increase the movements which are not so much limited, and in the course of their restoration to normal, gradually to limber up the most obviously limited movements. The latter are resisted by the strongest adhesions. There is no reason for stretching under anesthesia in these cases because this is likely to cause considerable damage to the capsule and the periarticular tissues. Early and skillful employment of suitable passive movements and manipulation is the best preventative of the formidable ankylosis and contractures. In order to make possible this early treatment, splints must be removable, and in case of nerve suture passive movement should be instituted as soon as the condition of the scar permits—usually after two weeks.

Active Exercise.—Active exercise and re-education of muscle function comprise the most important part of the treatment after active power to the affected muscles has begun to return. This occurs, as a rule, not earlier than the fourth month after injury. However, a nerve injury causes loss of function of an extremity far beyond the structures that are actually involved, because the normal use of the extremity has been lost. Furthermore, the usual routine of splinting and immobilization tends to cause patients to restrict the use of the limb to a minimum. The early use of suitable exercises will reduce much of the unnecessary waste of muscles and stiffening of joints. Hence, even in the early treatment of nerve injuries, exercises are indicated for maintaining the function of muscles not directly affected and also for maintaining the full range of joint motion. When signs of active power appear in the affected muscles, the simplest possible active exercises with these muscles are begun, at first with as much assistance by the technician as required. Movements on a powdered board or under water will greatly aid in overcoming gravity and in allowing gradual redevelopment of function in the very weak muscles. Exercises must be carried on in all instances with the parts properly supported and previously warmed. It is very rarely necessary to use artificial exercise apparatus for this purpose, but use can be made of the various types of simple active exercise devices that are available. Overexercising must be avoided at all times.

Occupational Therapy.—The last stage of muscle re-education consists in active stimulation of the patient's efforts by occupational therapy. A well-equipped and supervised work shop, where various simple tools provide practical and attractive work, is most desirable for this purpose. The same setup can be used in cases where there is lack of recovery, to teach the injured to make the best use of what remains to him. Gymnastic exercises are also valuable in this stage for general muscle redevelopment and increase of coordination.

Summary

1. The importance of the proper diagnosis and care of peripheral nerve injuries is shown by the fact that their number in World War I amounted to 5 per cent of the total casualties and to almost one-fifth of all traumatism to the extremities.

2. Operative procedures in nerve injury make it possible for nerves to regenerate, but they will not serve to restore function. As long as there is end-to-end apposition of nerve endings, there is a spontaneous tendency for recovery in nerve injuries.

3. In all nerve injuries early institution and systematic, skillful application of physical measures are essential for maintaining nutrition and function in all affected parts. These measures comprise, in early stages, splinting, thermal measures, electric muscle stimulation, massage, and passive movement; in the later stages, active exercise and occupational therapy.

4. Electrodiagnosis furnishes an indispensable aid in the diagnosis and recording of progress in nerve injuries and in differentiation of malingering or functional paralysis.

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Discussion

Dr. John H. Kohl, *Buffalo*—From an orthopaedic standpoint, peripheral nerve injuries present many complex problems, especially in so far as the treatment is concerned. It is true that our experience with this type of lesion is somewhat limited in civilian practice; nevertheless, these injuries must be dealt with so that the best results are obtained. It is within the province of the orthopaedic surgeon to prevent and correct deformities, and in these particular injuries prevention of deformity is the main goal.

In our experience, too, peripheral nerve injuries are most common in the upper extremities. Everyone is familiar with the damage to the musculospiral nerve that results from sleeping with one arm over the back of a chair and awakening in the morning with a wristdrop. Fractures in the region of the elbow, especially in children, account for many peripheral nerve injuries. It is always well to make sure before any manipulation of the elbow that there is no nerve injury and this should be tested very diligently so that after the reduction and application of a cast there is no question as to whether the nerve injury was present before any manipulation. This particular instance also has its medicolegal aspects.

Injury of the ulnar nerve produces the typical clawhand with atrophy of the hypothenar eminence, dorsal and ventral interossei, and lumbricalis muscles, with contraction of the fingers and fibrosis between the phalanges and ankylosed joints.

In the lower extremity, injuries to the external popliteal nerve are the most common in our experience. We have seen them as a result of an overly tight cast that presses on the external popliteal nerve as it winds around the upper end of the fibula, resulting in paralysis of the extensors of the foot and causing footdrop. This, we feel, is preventable if the cast is properly applied.

As far as treatment is concerned, proper splinting is of utmost importance, whether the nerve injury be caused by complete section, compression of the nerve from calluses, toxic lesions, or any cause whatsoever. In the wrist, for instance, in musculospiral paralysis, a cock-up splint should be applied, not to the extreme degree but enough to allow the paralyzed muscles to rest and to prevent the flexors from shortening. The splints should be so constructed as to allow for easy application and removal so that physiotherapy measures can be readily instituted. The splints should be light and not cumbersome.

I was pleased to hear Dr. Kovács mention his use of the hot whirlpool baths. We are very fond of this type of treatment because it improves the circulation in a cold and clammy extremity and helps to prevent fibrotic changes. In the use of diathermy, Dr. Kovács makes a good practical point in warning against the possibility of burns as a result of impaired sensation. We feel that massage when applied by an experienced masseur is a useful agent in promoting circulation. Passive motions are of the utmost value in preventing adhesions and contractures and therefore one of the most important physical therapy measures. We do not advocate stretching or breaking up adhesions under anesthesia because such manipulation causes more damage and in a short time the same conditions obtain and sometimes actually become worse.

Active exercises and occupational therapy certainly play a big part in the recovery of these patients.

In conclusion I would like to emphasize: (1) prevention of deformities in these cases, (2) the early use of suitable splints, and (3) the judicious use of physical therapy measures from the very beginning.

SULFONAMIDE THERAPY OF OCULAR INFECTIONS

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THE sulfonamide drugs have come into wide use in the treatment of ocular infections and the literature now contains a considerable number of reviews and reports recording their favorable action. They have been used at the Institute of Ophthalmology since 1938 for the treatment of ocular infections, and the present report is a summary of the results obtained with the oral treatment of a total of 152 cases. In addition, sulfonamide ointments have been employed successfully in a large series of blepharitis, conjunctivitis, and keratitis cases at Vanderbilt Clinic, but these results will be the subject of a later report.

Methods of Treatment

Five sulfonamide preparations—sulfanilamide, azosulfamide (neoprontosil), sulfapyridine, sulfathiazole, and sulfadiazine—have been employed in this series. In most instances treatment was given under the direction of members of the staff of the Department of Medicine of the College of Physicians and Surgeons. In general, the drugs were administered in such a manner and dosage as to give blood concentrations varying from 5 to 10 mg. per cent, and the usual precautions as to fluid intake, blood counts, urine examinations, etc., were taken. In certain cases sulfonamide preparations were employed locally (in solution, ointment, or powder form) to supplement the oral therapy.

Results of Sulfonamide Therapy

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2. Operative procedures in nerve injury make it possible for nerves to regenerate, but they will not serve to restore function. As long as there is end-to-end apposition of nerve endings, there is a spontaneous tendency for recovery in nerve injuries.

3. In all nerve injuries early institution and systematic, skillful application of physical measures are essential for maintaining nutrition and function in all affected parts. These measures comprise, in early stages, splinting, thermal measures, electric muscle stimulation, massage, and passive movement; in the later stages, active exercise and occupational therapy.

4. Electrodiagnosis furnishes an indispensable aid in the diagnosis and recording of progress in nerve injuries and in differentiation of malingering or functional paralysis.

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Discussion

Dr. John H. Kohl, *Buffalo*—From an orthopaedic standpoint, peripheral nerve injuries present many complex problems, especially in so far as the treatment is concerned. It is true that our experience with this type of lesion is somewhat limited in civilian practice; nevertheless, these injuries must be dealt with so that the best results are obtained. It is within the province of the orthopaedic surgeon to prevent and correct deformities, and in these particular injuries prevention of deformity is the main goal.

In our experience, too, peripheral nerve injuries are most common in the upper extremities. Everyone is familiar with the damage to the musculospiral nerve that results from sleeping with one arm over the back of a chair and awakening in the morning with a wristdrop. Fractures in the region of the elbow, especially in children, account for many peripheral nerve injuries. It is always well to make sure before any manipulation of the elbow that there is no nerve injury and this should be tested very diligently so that after the reduction and application of a cast there is no question as to whether the nerve injury was present before any manipulation. This particular instance also has its medicolegal aspects.

Injury of the ulnar nerve produces the typical clawhand with atrophy of the hypothenar eminence, dorsal and ventral interossei, and lumbricalis muscles, with contraction of the fingers and fibrosis between the phalanges and ankylosed joints.

In the lower extremity, injuries to the external popliteal nerve are the most common in our experience. We have seen them as a result of an overly tight cast that presses on the external popliteal nerve as it winds around the upper end of the fibula, resulting in paralysis of the extensors of the foot and causing footdrop. This, we feel, is preventable if the cast is properly applied.

As far as treatment is concerned, proper splinting is of utmost importance, whether the nerve injury be caused by complete section, compression of the nerve from calluses, toxic lesions, or any cause whatsoever. In the wrist, for instance, in musculospiral paralysis, a cock-up splint should be applied, not to the extreme degree but enough to allow the paralyzed muscles to rest and to prevent the flexors from shortening. The splints should be so constructed as to allow for easy application and removal so that physiotherapy measures can be readily instituted. The splints should be light and not cumbersome.

I was pleased to hear Dr. Kovács mention his use of the hot whirlpool baths. We are very fond of this type of treatment because it improves the circulation in a cold and clammy extremity and helps to prevent fibrotic changes. In the use of diathermy, Dr. Kovács makes a good practical point in warning against the possibility of burns as a result of impaired sensation. We feel that massage when applied by an experienced masseur is a useful agent in promoting circulation. Passive motions are of the utmost value in preventing adhesions and contractures and therefore one of the most important physical therapy measures. We do not advocate stretching or breaking up adhesions under anesthesia because such manipulation causes more damage and in a short time the same conditions obtain and sometimes actually become worse.

Active exercises and occupational therapy certainly play a big part in the recovery of these patients.

In conclusion I would like to emphasize: (1) prevention of deformities in these cases, (2) the early use of suitable splints, and (3) the judicious use of physical therapy measures from the very beginning.

SULFONAMIDE THERAPY OF OCULAR INFECTIONS

P. THYGESON, M.D., and WILLIAM STONE, JR., M.D., New York City

THE sulfonamide drugs have come into wide use in the treatment of ocular infections and the literature now contains a considerable number of reviews and reports recording their favorable action. They have been used at the Institute of Ophthalmology since 1938 for the treatment of ocular infections, and the present report is a summary of the results obtained with the oral treatment of a total of 152 cases. In addition, sulfonamide ointments have been employed successfully in a large series of blepharitis, conjunctivitis, and keratitis cases at Vanderbilt Clinic, but these results will be the subject of a later report.

Methods of Treatment

Five sulfonamide preparations—sulfanilamide, azosulfamide (neoprontosil), sulfapyridine, sulfathiazole, and sulfadiazine—have been employed in this series. In most instances treatment was given under the direction of members of the staff of the Department of Medicine of the College of Physicians and Surgeons. In general, the drugs were administered in such a manner and dosage as to give blood concentrations varying from 5 to 10 mg. per cent, and the usual precautions as to fluid intake, blood counts, urine examinations, etc., were taken. In certain cases sulfonamide preparations were employed locally (in solution, ointment, or powder form) to supplement the oral therapy.

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epithelial lesions, irrespective of the state of the conjunctiva. There have as yet been no recurrences in cases in which the corneae became entirely clear. While papillary hypertrophy regressed rather rapidly, conjunctival follicles, including limbal follicles, often required as long as six weeks to be absorbed.

From the experience in this series it seems safe to conclude that excessive blood concentrations of the drug are not required for the treatment of trachoma, a concentration of from 3 to 5 mg. per cent for two weeks often being sufficient.

Inclusion Conjunctivitis.—The rapid curative effect of sulfanilamide in 15 cases of inclusion conjunctivitis occurring in this series has already been reported.[2] In these cases the drug given orally was even more strikingly effective than it was in cases of trachoma. More recently the curative effect of 5 per cent sulfathiazole ointment employed locally in 15 cases of inclusion conjunctivitis in the newborn has been recorded.[3] In the infants this local treatment appeared to be as effective as oral therapy, but this was not the case in children and adults, some of whom required supplemental oral therapy. This difference in response between the infant and the adult may possibly be related to tear production. In the newborn infant tears are minimal and therefore do not dilute the drug as they do in the adult.

It may be said that inclusion conjunctivitis is one of the most satisfactory eye infections to treat with the sulfonamide drugs.

Lymphogranuloma Venereum.—No cases of lymphogranuloma venereum are included in this series, but it is of interest to refer to the report of Curth, Curth, and Sanders,[4] in which a case of primary lymphogranuloma venereum of the eye, giving the picture of Parinaud's oculoglandular conjunctivitis, was treated successfully with sulfanilamide at Vanderbilt Clinic.

Gonococcal Conjunctivitis.—Two cases of gonorrheal ophthalmia were treated with sulfanilamide, and 2 were treated with sulfathiazole, all with rapid cures. In all 4 the rapid disappearance of inflammation and discharge was dramatic. No corneal complications occurred. Smears and cultures all became negative within five days, and in two instances within forty-eight hours. No supplementary local therapy other than irrigation with normal saline or boric acid solution was employed.

Streptococcic Membranous Conjunctivitis.—In this series there were 2 cases of severe membranous conjunctivitis due to beta hemolytic streptococci. One of these responded rapidly and completely to sulfathiazole orally combined with 5 per cent sulfathiazole ointment locally. The membrane which involved the bulbar conjunctiva disappeared on the second day of treatment and the eye returned to normal within a week.

The second case was that of a young Negro girl who came to Vanderbilt Clinic with a bilateral membranous conjunctivitis of five days' duration, dense membranes covering the entire conjunctival surfaces and corneae. Sulfadiazine orally in full dosage combined with sulfadiazine powder locally failed to influence the disease, which progressed to complete destruction of both globes. The organism was found to be a group A type 25 streptococcus susceptible in vitro to sulfanilamide and the other sulfonamides. A change to sulfanilamide orally combined with sulfanilamide powder locally was no more effective. Six weeks after onset, when the membranes had been mechanically removed, the organisms disappeared.

This failure of a sulfonamide-susceptible organism to respond to sulfanilamide or sulfadiazine is believed to be related to the amount of tissue destruction that was present. It is well known that the action of the sulfonamides is inhibited by broken-down cell products.

Catarrhal Conjunctivitis.—In this series only 3 cases of catarrhal conjunctivitis were hospitalized for oral therapy. A severe Haemophilus influenzae conjunctivitis of unusual severity became symptom-free in forty-eight hours on oral sulfanilamide combined with 0.8 per cent sulfanilamide solution used as an irrigation fluid. One case of severe chronic catarrhal conjunctivitis, in which an organism of the Proteus group was the only pathogen present, yielded rapidly to sulfathiazole but recurred a few weeks later. One severe staphylococcic blepharoconjunctivitis became symptom-free after a course of sulfathiazole, but the organisms persisted in the meibomian glands, and the conjunctivitis later recurred. The recurrence was controlled by staphylococcus toxoid combined with sulfathiazole ointment.

As has been reported in detail in a later communication,[5] a series of over 100 cases of catarrhal conjunctivitis due to Diplococcus pneumoniae, Staphylococcus aureus, and H. influenzae responded well to 5 per cent sulfathiazole ointment.

Conjunctivitis of Unknown Cause.—In this series, there were a number of cases of conjunctivitis of unknown cause. One case of acute ocular pemphigus, with skin and other mucous membrane involvement, failed to respond to sulfanilamide, and a case of severe chronic pemphigus showed no improvement on neoprontosil (azosulfamide). As was expected, 2 cases of vernal catarrh were uninfluenced by sulfanilamide. One of 3 cases of severe chronic conjunctivitis of nonspecific character failed to respond to sulfonamide therapy. A second case in which

bacteria of the Lactobacillus group were constantly present, cleared temporarily on sulfathiazole but promptly recurred. The development of a sensitivity to sulfathiazole prevented its re-use, and courses of sulfapyridine and sulfadiazine failed to affect the recurrence. A third case, a severe keratoconjunctivitis, is of special importance and warrants reporting in some detail:

P. M., a man, age 27, developed in 1936 a severe nonspecific keratoconjunctivitis whose cause could not be determined. Treatment failed to ameliorate the condition, and the keratitis progressed to complete corneal vascularization in each eye. The condition was not affected by local antiseptic therapy of many kinds and resisted a course of sulfanilamide. It responded brilliantly to sulfathiazole, however, but the sulfathiazole had to be terminated after ten days because of a febrile reaction. Following cessation of treatment, the ocular inflammation and discharge soon recurred. A course of sulfapyridine lasting five days was terminated because of severe nausea and vomiting. The drug had failed to affect the disease. The use of a 1 per cent sulfathiazole ointment locally effected an immediate cure which has now lasted nineteen months. Vision improved to 20/30 in the left eye and to 20/50 in the right eye and the patient has been able to obtain employment. The conjunctiva on healing showed very fine scarring suggestive of trachoma, but at no time were tarsal follicles, limbal follicles, inclusion bodies, or other pathognomonic signs of trachoma observed.

Blepharitis.—Two cases of blepharitis in which Staph. aureus was the infectious agent failed to respond to oral sulfanilamide but healed on treatment locally with sulfathiazole ointment. Three cases treated orally with sulfathiazole improved strikingly but were not permanently cured, and one treated with sulfadiazine failed to improve. All 4 cases eventually became symptom-free on sulfathiazole ointment combined with staphylococcus toxoid injections.

Impetigo.—There were no cases of impetigo treated orally in this series, but 4 cases of the disease, in which Staph. aureus appeared to be the sole pathogen, responded rapidly and completely to 5 per cent sulfathiazole ointment used six times daily.

Dacryocystitis.—Three cases of acute dacryocystitis (caused by pneumococci in 2 cases and by beta hemolytic streptococci in one) responded dramatically and rapidly to sulfathiazole and to sulfanilamide (streptococcus case) by mouth. The streptococcic case was important because of the severity of the associated conjunctivitis which was pseudomembranous in character.

Dendritic Keratitis.—Three patients with dendritic keratitis (herpes corneae) were treated with sulfonamide drugs; 2 with sulfanilamide-treated cases showed apparent response to therapy, but it was not possible to follow the patients for recurrences. The other case was unimproved by sulfadiazine and was later treated by curettage and iodinization.

In view of the known failure of the sulfonamides to affect typical viruses, it seem sunlikely that the two apparent successes were indicative of specific sulfonamide action.

Other Keratitis Cases of Virus Origin.—A single case of herpes zoster keratitis failed to respond to sulfanilamide therapy. A case of severe superficial keratitis with pannus secondary to a molluscum nodule of the upper lid likewise failed to respond to sulfanilamide therapy but healed rapidly when the nodule was removed. One case of epidemic keratoconjunctivitis failed to respond to sulfadiazine therapy used locally, and 3 similar cases were not affected by 5 per cent sulfathiazole ointment used locally.

Keratitis of Unknown Cause.—Three cases of severe keratitis of unknown cause differed in their response to sulfonamide therapy; one, a superficial keratitis with vascularization, responded rapidly and completely to sulfathiazole, while the other 2, treated by sulfathiazole and sulfanilamide respectively, failed to respond in any way.

Corneal Ulceration.—Two cases of Mooren's ulcer were treated with sulfanilamide without result. One of these was later arrested by delimiting keratotomy combined with repeated paracenteses.

Marginal ulceration from which Staph. aureus could be recovered responded satisfactorily to sulfathiazole, local application of the ointment form appearing to be quite as effective, or perhaps more effective, than oral administration. Marginal ulceration of unknown cause, particularly that type in which there were multiple foci—the so-called "ring ulcer" which occur most commonly in elderly women, failed completely to respond to the sulfonamides, either orally or locally in ointment or powder form. There were 6 examples. One case of marginal ring infiltration of unknown cause, believed endogenous in origin, responded rapidly and apparently completely to sulfathiazole.

There were 4 cases of serpent ulcers due to pneumococci. Three of these responded satisfactorily to sulfapyridine, although not so rapidly as had been expected in view of the favorable results of sulfapyridine chemotherapy in pneumonia. The fourth case was treated with sulfanilamide, but failed to respond. This was to be expected in view of the well-known resistance of pneumococci to sulfanilamide.

One case of hypopyon ulcer due to beta hemolytic streptococci responded dramatically to sulfanilamide, a change for the better being manifested as early as twenty-four hours after

TABLE 1.—Ocular Infections Which Should Respond Well to Sulfonamide Therapy

Virus infections	Gonococcus infections
Trachoma	Conjunctivitis
Inclusion conjunctivitis*	Iridocyclitis
Lymphogranuloma venereum	Pyocyaneus infections
Hemolytic streptococcus infections	Ulcers
Conjunctivitis†	Proteus infections
Corneal ulcers	Conjunctivitis*
Endophthalmitis	Coliform group infections
Orbital cellulitis	Conjunctivitis*
Impetigo*	Haemophilus influenzae infections
Staphylococcus infections	Conjunctivitis*
Dacryocystitis	Orbital cellulitis
Conjunctivitis*	Friedlander bacillus infections
Ulcers*	Ulcers†
Endophthalmitis	Dacryocystitis
Blepharitis*	Meningococcus infections
Orbital cellulitis	Endophthalmitis
Impetigo*	Conjunctivitis
Pneumococcus infections	
Dacryocystitis	
Conjunctivitis*	
Ulcers†	
Endophthalmitis	
Orbital cellulitis	

* Local therapy preferred
† Combined oral and local therapy preferred.

TABLE 2.—Ocular Infections in Which Peroral Administration of Sulfonamides May Be of Value and Deserves a Trial

Actinomyces bovis	Brucella melitensis-abortus-suis
Actinomycosis	Keratitis
Clostridium welchii	Uveitis
Endophthalmitis	Choroiditis
Haemophilus ducreyi	Erythema multiforme (cause unknown)
Soft chancre of lid or conjunctiva	Conjunctivitis
Streptococcus viridans	Keratitis
Conjunctivitis	Moraxella lacunata (diplo bacillus of Morax-Axenfeld)
Endophthalmitis	Conjunctivitis*
Klebsiella pneumonia (Friedlander)	Marginal ulcers*
Ulcers	Moraxella duplex (diplo bacillus of Petit)
	Central ulcers

* Local therapy more important

the first administration of the drug. The eye healed with an inconspicuous nebulous opacity permitting useful vision. Since the ulcer involved the pupillary area, treatment that required cauterization would undoubtedly have resulted in complete loss of vision.

One ulcer in which both Friedlander and pyocyaneus bacilli were present responded dramatically to sulfadiazine orally supplemented by sulfadiazine powder locally, useful vision being retained. A second ulcer due to the pyocyaneus bacillus alone responded satisfactorily to sulfadiazine orally combined with sulfadiazine powder locally.

There were 7 acute ulcers in which the causation was not determined. It is noteworthy that all of these responded satisfactorily to sulfonamide therapy.

Uveitis.—A total of 11 patients with uveitis were given oral sulfonamide therapy, 3 with sulfathiazole, 3 with sulfanilamide, and 5 with sulfadiazine. Only 2 of the 11 showed improvement which could be considered significant. One of these had a history of previous gonorrheal urethritis and the fibrinous character of the anterior chamber exudate suggested a gonococcal cause. This relative failure of the sulfonamides to affect uveitis, which confirms the results reported by Guyton[6] and by Guyton and Woods,[7] must be considered as some indication that uveitis, in general, is not caused by direct metastasis to the uveal tract of sulfonamide-susceptible bacteria.

Endophthalmitis.—There were 15 cases of endophthalmitis and panophthalmitis in this series. Seven of them responded significantly to sulfonamide therapy, 4 of the 7 dramatically. In 6 of the 7 cases, Staph. aureus was the probable causal organism. The cases in which the probable causal agents were hemolytic streptococci, Pseudomonas pyocyanea, and D. pneumoniae failed to respond.

Toxic Effects of Sulfonamide Therapy.—There was only one serious toxic complication in this series of sulfonamide-treated patients. This was a hemolytic anemia in a colored man treated with sulfanilamide for a uveitis. A transfusion was required but recovery from the anemia was rapid. Other complications were of minor importance and consisted principally of fever and dermatitis with mild anemia developing in some of the trachoma cases which were treated for relatively long periods of time. A few individuals developed a sensitivity to sulfathiazole ointment used locally, reacting with a conjunctivitis and dermatitis of the eyelids. No local sensitivities have as yet been observed to sulfadiazine ointment.

Comment

The results in this series parallel closely those obtained in similar series reported by Guyton[6] and Guyton and Woods,[7] from the Wilmer Institute. The Wilmer series, however, includes data on several additional infections—namely, meningococcus panophthalmitis, orbital cellulitis of unknown cause, and corneal ulcer apparently due to Shiga dysentery bacillus. The first two infections responded dramatically to sulfonamide therapy, the third doubtfully.

Our findings appear to be in agreement with those reported by most other observers, but no attempt has been made in this report to review the literature. However, on the basis of data contained in this and other reports, ocular infections have been divided tentatively into 3 groups according to their probable response to

the sulfonamides. Table 1 lists the infections which should respond well, Table 2 the ocular diseases in which sulfonamide therapy is worthy of trial, and, Table 3, those diseases in which sulfonamide therapy is probably of little or no value. It will be noted that Tables 1 and 2 include several diseases, such as ocular actinomycosis and Clostridium welchii endophthalmitis, etc., for which no data on eye infections are available as yet. They were included because of reports of their sulfonamide-susceptibility when localized elsewhere in the body.

It is to be expected that there will be an increase in the local use of sulfonamide preparations. Local use has two distinct advantages: (1) that general toxic reactions can be avoided and (2) that much higher local concentrations can be obtained. The main disadvantage of local therapy is that continuous twenty-four-hour concentrations are difficult to maintain. For this reason solutions would appear to have little value for lid, conjunctival, and corneal conditions. The drugs in ointment or powder form, however, seem to be effective in many instances.

TABLE 3.—OCULAR INFECTIONS IN WHICH SULFONAMIDE THERAPY PROBABLY IS OF NO VALUE

Nonhemolytic streptococcus infections	Ocular pemphigus
Orbital cellulitis	Typical virus infections
Endophthalmitis	Herpes corneae (dendritic keratitis)
Corneal ulcers	Herpes zoster
Tuberculosis	Variola
Uveitis	Vaccinia
Conjunctivitis	Measles, etc.
Keratitis	Uveitis (idiopathic)
Tularemia	Sympathetic ophthalmia
Leptotrichosis conjunctivae (Parinaud's conjunctivitis)	

Conclusions

1. A series of 152 ocular infections treated by peroral administration of the sulfonamide drugs at the Institute of Ophthalmology are analyzed.

2. Infections responding rapidly to oral sulfonamide therapy included: (1) conjunctivitis due to Neisseria gonorrhoeae, H. influenzae, and beta hemolytic streptococci, as well as trachoma and inclusion conjunctivitis, (2) acute dacryocystitis due to D. pneumoniae, Streptococcus haemolyticus, and Staph. aureus, and (3) corneal ulcers due to Streptococcus haemolyticus and Ps. pyocyanea.

3. Infections responding definitely but slowly or incompletely included (1) blepharitis due to Staph. aureus, (2) conjunctivitis due to coliform bacteria and Staph. aureus, and conjunctivitis secondary to Streptothrix concretions of the canaliculi, (3) corneal ulcers due to Staph. aureus and D. pneumoniae, and (4) endophthalmitis due to Staph. aureus.

4. Ocular infections responding either very slightly or not at all to sulfonamide therapy included acute and chronic pemphigus, Parinaud's conjunctivitis (leptothricosis conjunctivae), Mooren's ulcer, herpes zoster ophthalmicus, dendritic keratitis, sympathetic ophthalmia, idiopathic uveitis, and endophthalmitis due to hemolytic streptococci, Ps. pyocyanea, and D. pneumoniae.

5. Sulfadiazine (because of its low toxicity and wide range of activity) appeared to be the drug of choice for oral administration in most ocular infections susceptible to sulfonamide therapy.

6. Local sulfonamide therapy has been employed with success in superficial infections, including blepharitis, conjunctivitis, and corneal ulceration. Sulfathiazole ointment in blepharitis and conjunctivitis, and sulfadiazine powder in corneal ulceration appear to be especially valuable. Combined oral and local therapy may be used with advantage in severe infections.

7. Sulfonamide therapy has revolutionized ocular therapeutics.

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Discussion

Dr. L. Maxwell Lockie, *Buffalo*—This paper is a real contribution to medical literature. It is most thorough and carefully controlled. The range of eye conditions covered is broad. I have enjoyed the privilege of reading the paper and listening to the presentation at this time.

From the standpoint of the internist, there is no choice as to the type of sulfonamide therapy to be used. It is sulfadiazine or sodium sulfadiazine. These drugs have been shown to be just as effective as sulfanilamide, sulfapyridine, or sulfathiazole. In carefully controlled cases, the use of the other sulfonamides has not influenced the general course of the disease if sulfadiazine was ineffective.

Sulfadiazine was described in 1940 by Roblin and others. It can be given orally or locally. The sodium salt is the one used when other routes are necessary. If it is given orally, higher blood levels will occur (8 to 12 compared to 12 to 15 mg. per cent).

It is readily taken by most patients. After oral administration is begun, the drug slowly appears in the blood stream and the peak is attained in six to eight hours. If a more rapid absorption of the drug is necessary, then the intravenous route may be used at the beginning of treatment, which may be started by the oral route at the same time.

The drug is excreted slowly—approximately 50

per cent will be excreted in twenty-four hours and measurable amounts are present in the blood for several days. Excretion is through the kidneys.

With doses given every four to six hours, it is easy to maintain a blood level that is satisfactory. This is in the neighborhood of 15 mg. per cent. In seriously ill patients it may be held as high as 20 mg. per cent. A small proportion of the drug is in a conjugated form in the blood. It penetrates the red blood cells more readily than other forms of the sulfonamides.

Maintenance dose with constant urinary output will show an excretion of 50 to 75 per cent daily in the urine. Within thirty minutes after the drug is ingested orally, it begins to appear in the urine. If given intravenously there will be traces in the urine immediately.

The studies on the solubility of sulfadiazine are interesting. At 37 C. it registers 12 mg. per cent in water, 19 mg. per cent in normal saline, and 204 mg. per cent in whole blood.

When a large series of cases is reported, it is seen that sulfadiazine acts more favorably than the other sulfonamide drugs. That is, more patients with pneumonia are better at the end of thirty-six hours if they are kept on sulfadiazine.

After reviewing very briefly the pharmacology of sulfadiazine, one wonders if it can be given to everyone without harm. For practical purposes it can, but Dr. Thygeson and Dr. Stone have shown that there are a few toxic reactions. The more sulfonamide preparations developed, the less toxic they are.

It is possible and safe to give sulfadiazine to the ambulatory patient. With sulfanilamide, sulfapyridine, and sulfathiazole it was advisable to have the patient hospitalized because of the dizziness and mental uncertainty which went with effective dosage. These symptoms do not occur with sulfadiazine.

However, a few patients may be nauseated after taking the drug for several days. It should be stopped when this occurs. A few will have fever. This may come on insidiously or very suddenly, with or without headache and malaise. Occasionally a rash is noted. Most common of all is pain in the flanks and the presence of crystals in the urine. Hematuria may occur, but no kidney damage persists. Occasionally a mild conjunctivitis occurs, accompanied by congestion of scleral vessels.

Shifting from other sulfonamide drugs to sulfadiazine because of toxic manifestations resulted in prompt subsidence of these toxic signs even though there was no rest interval. Therefore, patients sensitive to other forms may tolerate sulfadiazine. Sulfadiazine failed in some cases, but the other sulfonamides failed in the same cases.

Sulfadiazine is the drug of choice when any of the sulfonamide group is indicated.

"DOCTOR JONES" SAYS—

These drug addicts—morphine and so on—I was talking to a fellow that's connected with the Health Department (their Narcotic Bureau) and, you know, that's quite a problem. There's thousands of 'em—these addicts and right now they're up against it. Of course the law—a doctor can prescribe a narcotic for a patient he's examined and found something the matter with him. But the majority of 'em—they aren't patients of any doctor and if they were they wouldn't be satisfied with the amount of the drug the doctor'd give 'em. You see the ordinary dose of morphine is around a quarter of a grain and some of these folks—they've been taking as high as ten or fifteen grains at a dose.

In the past they've been getting their supplies—most of 'em have—through "underground" channels: dope peddlers and so on. But now, on account of the war the opium supplies have been cut off (that's what morphine's made from) and in fact we haven't got enough to meet our legitimate needs. So the addicts have turned to all kinds of tricks: stealing from hospitals, forging doctors' prescriptions, visiting one doctor after another, and what not.

And a real drug addict—if he runs out of his drug he's practically crazy and there ain't much of anything he won't do to get it.

Of course we're apt to think of these people as underworld characters—call 'em dope fiends and all that. But we don't want to forget that it's awful easy to get a drug habit and a lot of fine people have been caught in the net. Sometimes they get loose from it but it's a tough fight and it takes a lot of character and backbone. I can think of two good friends of mine—one of 'em a very capable doctor—that used to be addicts years ago and were completely cured. There's no kind of treatment you can depend on—not unless they've got the courage and determination to fight it out. Most of 'em, when it once gets hold of 'em—you can lock 'em up and get 'em off from it for a while but when they get out they'll go back to it.

And it's a problem for the doctors—these addicts are. You hate to turn 'em out when you know they're suffering. But if you give 'em the drug, it won't be long before they'll be back and doctors have gotten into trouble being too kind-hearted. And there's practically no place where you can send 'em for treatment where they'll have to stay. The way it looks to me: there ought to be a state institution where they could be committed. Some of 'em could be cured and the rest of 'em—well, it'd get 'em off'm the doctors' necks, if nothing more.—*Paul B. Brooks, M.D., in Health News*

STRUTH!

"Sympathy in the practice of medicine," announced *Dr. DeWitt Neighbors*, of Fort Worth, "is like the air on the inside of a tire. There may be nothing to it, but it eases many a jolt and saves many sore spots."—*Texas State J. M.*

DIPLOMACY

"Why," demanded *Dr. Edward Randall, Jr.*, of Galveston, "do you look at your watch so often?"

"I was afraid," hastily responded the medical student, "that you would not have time to finish your interesting lecture."—*Texas State J. M.*

THE PROBLEM OF SELF-ESTEEM IN PSYCHOTHERAPY*

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ONE of the most difficult problems in psychotherapy is how to deal with the inordinately low self-esteem of the emotionally ill person. The problem is important because it is manifestly impossible for an individual to attain to mental health without a wholesome attitude toward himself as a human being.

The constellation of devaluated self-esteem is encountered with surprising frequency in our culture. Sometimes it is the presenting symptom of the neurosis, the patient manifesting ideas of worthlessness, inadequacy, and self-condemnation. More often it lurks subversively in the unconscious, giving rise to symptoms of a defensive nature, such as inhibitions in action, thought, and feeling and to perfectionistic or grandiose strivings.

Perhaps the most catastrophic consequence of lowered self-regard is the fostering of a profound disturbance in interpersonal relationships. The undermined person who harbors contemptuous attitudes toward himself is bound to have contemptuous attitudes toward others. Feeling unworthy and insignificant, he is prone to credit other people with malignant tendencies and poisonous attitudes directed at himself. He may strive to isolate himself from the world, little realizing that it is he who creates the conditions for his self-isolation. Furthermore, he is apt to develop strong feelings of resentment toward others on the basis that they reject him at the very time that he, himself, shies away from such intimacies as companionship, love, and helpmateship. An exorbitant need for affection and approval may coexist, but his feelings of unworthiness and his ideas of being unlovable act as impenetrable barriers. Indeed a warm feeling toward any other person may be a real threat. An intimate relationship may mean to him that he will lay himself open to criticism, exploitation, and even injury.

The feelings of resentment are usually too powerful to dissipate themselves and are often either projected outward toward the world in a diffuse paranoid reaction or are turned on the self in the form of agitated, depressed, and self-destructive tendencies. In the event that the character structure is such that rage and aggression are regarded as dangerous, the emotion may never actually penetrate into consciousness, but rather will drain itself off through autonomic channels, producing widespread adrenergic or cholinergic effects. In the event that the individual possesses a constitutionally defective organ, a psychosomatic disease process may be the final outcome.

A further consequence of a lowered self-regard is an unwarranted shyness, timidity, and submissiveness and a shrinking away from any situation that tends to arouse inferiority feelings. Manifold defenses will be set up against getting oneself into any situation in which one's inadequacy or inferiority may be exposed. This often leads to a general inhibition in intellect, a procrastination and postponement of endeavor, an inability to perform, a blocking of purposeful activities, and particularly a shrinking from competitive situations. The interference with work may be so extreme that the person may be unable to live up to his talents or aptitudes, and his timidity may remove the possibility of gratifying his fundamental needs, such as seeking a livelihood or a marital partner. His lack of confidence and self-assurance may be related to all situations or may be specifically related to performances with equals or superiors. The phenomena of stage fright, of inability to talk in public, and of stammering fall into this category.

The person with low self-esteem may feel so weak within himself that he is forced to cling compulsively to others for strength and sustenance. This leads to a dependency relationship with a stronger, more powerful individual and an unquenchable yearning for companionship, for special favors and attention which he may spurn even when proffered because of a feeling that he has no right to these favors. In some cases, self-contempt may be manifested as a masochistic drive with impulses toward self-punishment, self-injury, or self-destruction. These impulses are often unconscious means of purging oneself of guilt feelings or of restoring oneself as worthy in the eyes of authority. Punishment becomes then a commodity that secures for the individual retribution for actual or fancied transgressions. Projection tendencies may be associated with self-denial, and the patient, although exploiting himself, will hate the role he plays and blame the world for treating him like a doormat.

In the face of mounting tension and anxiety, relief is often sought in drink. Alcoholic indulgence may come to have a tremendous subjective value since by deadening the higher sen-

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* This is the second of three papers on psychotherapy by Dr. Wolberg. The first paper appeared in the July 1 issue.—*Editor*

sibilities it releases the individual from the bonds of self-contempt. Alcohol becomes the magic carpet that sends him soaring into acts of intrepidity and feelings of self-importance. Under such circumstances sobriety becomes tantamount with suffering, surcease from which may be sought in bouts of drinking.

The psychodynamic core of devaluated self-esteem lies in the intense sense of helplessness and isolation that results from the discovery of self as an undermined, inept, inadequate, and contemptible person. As a result, any situation in which one feels worthless may precipitate choking sensations, heart palpitations, shakiness, blushing, sweating, and other symptoms of anxiety. There is a great vulnerability to slights, to criticism or disapproval, which in the setting of an over-evaluation of the opinion of others makes life a constant source of pain. There may be an inability to tolerate frustrations, however slight, because frustration is somehow looked upon as an indication of one's worthlessness. A physical illness or disease may similarly be looked upon as a positive proof that one is the loathsome person one fears himself to be, and individuals who regard illness as an assault on their status may have a lurking fear of syphilis or cancer or other corrupting malady in the form of a disease phobia that is peculiarly invulnerable to appeals to reason.

There is almost always an attempt on the part of the person with low self-esteem to project the inner devaluated image of himself onto whatever material situation exists that can provide objectivity for his basic feelings of inadequacy. These feelings may be symbolized by ideas that one has an inadequate physique or intelligence or bodily function. It goes without saying that the possession of a physical handicap, such as a facial blemish or an orthopaedic deformity, is often presented as reason for inner feelings of insecurity. Race, caste, and sex are other scapegoats, and there is often a tendency on the part of women to blame their neurotic problems on the fact that they are deprived of the privileges of men. An analysis of these objective conditions, even though they are realistic and undoubtedly foster insecurity, shows that they are merely façades which rationalize the contemptuous feelings that the individual harbors toward himself. Most physicians can provide examples from their own experience of individuals who, though suffering deforming or debilitating illness, feel sufficiently secure within themselves to succumb to neither panic nor anxiety, nor do they yield to the temptation of branding themselves pariahs without rights or privileges.

Most patients are only partially aware of the depths of their self-contempt, for the defensive forces of the ego frequently set up compensatory mechanisms to avert anxiety. A common defense is a complete repression of feelings of inferiority with a swing over to superiority strivings embracing compulsive drives for dominancy, mastery, and power. There is often associated an avoidance of relationships with superior or authoritative individuals and a seeking out of helpless and inept people. The patient may actually embark on a crusade of championing the helpless. In his attempt to help those weaker than himself there may often be detected a strongly aggressive attitude in the form of a desire to control others the way he himself feels controlled by authority. There may be strivings to attain those things symbolic of value in our culture in the form of prestige, status, money, lineage, or class distinction. Or the individual may try to adorn and bolster up his impoverished self by grandiose impulses. He may even develop a fabulous, bloated image of what he would like to be and live solely in the hope that someday this image will magically come into his own right. Beneath this narcissistic inflation, the physician will always detect a feeling of helplessness. One of the unfortunate consequences of the grandiose striving is that the patient may set up goals for himself that are superhuman in nature and which are impossible for any person to achieve. These goals are so high that failure is inevitable, and repeated failures light up the conviction of worthlessness, thus continuing the vicious circle of further grandiose strivings. In many instances shyness and timidity are completely repressed and a compensatory boldness drives the person into episodes that prove his strength and fortitude. The outward image he would like to present to the world is a creature of dauntlessness and braggadocio.

When strivings for mastery and power are signs to the individual that he is embarking on an aggressive role and where there is a fear of aggression, his desires for supremacy, for admiration, and appreciation may be indulged in merely in fantasy, either in the form of daydreams or in attempts to identify himself with great characters or outstanding personalities who possess the qualities he admires so intensely. There may also develop a tendency toward perfectionism, with a need to render oneself unassailable in all fields of work or play. There may result a concentration on the most inconsequential details of living that the average person would pass off as insignificant, as if any failure, however small, is evidence that one is utterly worthless and despicable.

How to deal with the entity of lowered self-

regard is a matter about which little agreement exists among the various schools of therapy. Logic tells us that if we dissect thoroughly the image that the person has of himself, if we teach him the destructiveness of this image, as well as the inadequacy of his defenses, he will change. That logic somehow fails is the experience of most physicians who are confronted with this problem in their patients. There is considerable danger in a premature probing of the contemptuous inner image of a patient. Mental stability is often maintained by a process of repressing the hideousness of this image, and when the patient is brought face to face with the basic feelings about himself the results may be disastrous. Similarly, one must attack with very great caution the various defenses that the patient has set up in the form of perfectionistic strivings, power impulses, grandiose desires, and the like, which are merely defense mechanisms enabling him to function in the face of his crushed self-esteem. There is little doubt that his defenses can be taken apart as irrational and exposed as impossible of attainment. An attack such as this almost inevitably creates panic because it arouses the specter in the patient of being the worthless and inferior person that he strives to avoid by his compensatory technics.

Another approach to the treatment of patients whose neurosis revolves about devaluated self-esteem is the analysis of the development of impaired self-strivings related to environmental experiences and conditionings. There is no question that genetic factors play a signal role in the evolution of the self as an entity. In the process of normal development the infant displays aggressive strivings which are perhaps biologically conditioned by the need to break from dependency ties with the parent. Curiosity and a certain amount of destructiveness in exploratory activities occur normally and the emotion of rage is precipitated whenever the child is hampered in his attempts at independent action. At the same time the child's physiologic helplessness makes him dependent upon his parents and causes him to react intensely to loss of parental love and approval. Where undue disciplines are used to crush the normal strivings for independency, where rage as it is expressed by the child arouses a threat of abandonment or of counteraggression, and particularly where the child feels unloved and insecure unless he conforms to the dictates of his parents without revolt, the normal desire for independence and the normal exercise of aggressiveness will have to be repressed. Furthermore, a series of defenses may be set up with the aim of keeping aggression in check.

The domineering type of parent who considers the child's aggressiveness and striving for independency a threat to himself may crush the child into a state of compliance and interfere with the normal development of the ego. As a result, the child may never attain to a state where he can emancipate himself from the parent, and he may never develop proper feelings of self-sufficiency, self-reliance, and self-confidence. He is apt to become dependent for his self-evaluation upon others rather than upon himself, and he is prone to rely completely on the standards, values, and ideals of other individuals. The parent who deflates or humiliates the child by telling him that he looks or acts stupid, the parent who subjects the child to beatings or who sets goals and standards for the child far above what can be expected of him in view of his intellectual and experiential immaturity also sows seeds for a devaluated image of the self. Strong sibling rivalry in the event of an older child who sees his parents transfer their love and attention to a newcomer is another condition that is seen with great frequency, especially in a child who feels insecure in his relationships with his parents. Such a child may interpret the transfer of love to the younger child as a sign of abandonment and an indication that there is something wrong with himself. Also a younger child who is unable to attain to the performances of an older sibling and who is whipped up into a frenzy of competitiveness by goading parents or relatives is also apt to develop inferiority feelings.

It is true in some cases that an analysis of the determinants in the child-parent relationship may start a curative process going, but unfortunately this does not happen nearly so often as one might expect. Usually a search for causation yields little except that it provides the patient with a chance to pass responsibility for his problems on to the parents. In this way it gives him an opportunity to rationalize his possibilities for change on the basis that it is too late for him to do anything about the way he was reared.

The question that often arises is whether rebuilding the self-esteem would not dissipate the neurotic symptoms and the defensive coping devices that issue from the feelings of helplessness. There is little doubt that were we able to rebuild devaluated self-esteem in a patient the effect would be ameliorative if not curative. The important problem is the technic by which the self-esteem can be restored.

Reassurance and praise are devices as old as psychotherapy itself and are based on the theory that if we inflate the patient's ego he will resurrect himself from his plight. Unquestionably there are some individuals who respond almost miraculously to therapy of this type. When we

analyze the character structure of these patients we find that they are usually compulsively dependent individuals who have established a relationship with the psychotherapist through which they yield themselves completely to his opinions and demands. In a situation such as this, the individual's self-esteem is based on how well he believes he is regarded by the therapist. Reassurance in this type of patient will certainly restore his self-esteem. This, however, is only temporary, for the self-esteem will be maintained only so long as there is confidence in the protective and magical properties of the therapist. Unfortunately the dynamics of the dependency relationship are such that intense feelings of hostility generate themselves when whims and fancies are not fulfilled by the magical protector. The patient's demands eventually become inordinate, and his hostility at not having his demands fulfilled may become so intense that the relationship will terminate explosively. The patient will then embark on a quest to find stronger and more generous hosts.

In some instances patients will actually be plunged into panic by reassurance and praise on the part of the physician. The basis for this anxiety is often the exorbitant expectations that the patient has of himself and the secret wish to attain to extraordinary accomplishments. The fear of failure so frequently encountered may stem from a twofold cause: first, the coming face to face with the inadequate, contemptible image of the self in failure, and, second, the discovery that one's abilities and potentialities are no more than merely human. Such patients are unconsciously arrogant to an extreme, and while they overtly flagellate themselves with their inadequacies, secretly they expect and hope that others will detect in them superhuman qualities. Reassurance precipitates rage and despair, for the patient feels that the physician is satisfied with him the way he is and threatens to dissolve the image of what he would like to be before his very eyes. Under such circumstances the physician may be rejected as incompetent or hostile.

Another reason why praise and reassurance may fail is that the entire structure of self-devaluation may serve a vital purpose of protecting the self from injury or may act as a means of pleading for love and protection on the basis of one's helplessness. This is often the case if the patient as a child got security from his parents through submission or if the undermining of the self became a condition essential to being loved. As a result, any attempt to assure him that he is not a helpless, inadequate individual may threaten to remove an important protective mechanism. There are some patients who actually capitalize on the low opinion of themselves, seeking opportunities to tear themselves down, thereby gaining vicarious pleasures. In addition to the masochistic yielding to suffering as penance for forbidden impulses or fantasies, some patients use self-debasement as a means of excusing themselves from activities and interests indulged in by normal people. If one is inept and helpless one may be excused from relating himself emotionally to other persons. Here unconscious fears inhibit the individual from expressing sexual and social needs, and the low self-esteem is used as an escape mechanism. This mechanism the patient will hold onto in spite of praise or reassurance.

Other methods of rebuilding self-esteem are perhaps more efficacious. Among these is occupational therapy. A skilled therapist can often turn many of the patient's frozen energies that have been inhibited by a fear of failure into creative channels. When the patient's expectations of himself are not too exorbitant, it is possible that his entire estimate of himself may be rebuilt by activities along a creative line. The process is necessarily a long one since it involves a rebuilding of self-confidence and a feeling that one can function independently without the need of a magical protector and without the fear of being injured for what he considers to be aggressiveness on his part. Occupational therapy and the externalization of interests into such channels as hobbies, welfare work, and social activities may, by adding to the self-esteem, permit the ego to proceed to a more or less complete repair.

The tenacity with which patients cling to the devaluated image of themselves is always confounding unless we analyze the character structure to determine what the patient symbolically believes his self-esteem is based upon. Only by analyzing these symbols can we deal effectively with the structure of his diseased regard of self. For example, a compulsively dependent person measures his self-esteem in terms of whether he is loved or approved of by the person upon whom he leans. The individual whose personality is one of aloofness and self-sufficiency will regard himself with contempt when he accepts help from another person. His self-regard is based upon a need to maintain his individuality, which in turn generates strivings to ward off those intimacies that encroach on his privacy. To accept help or love or advice from another is to him a sign of weakness. The perfectionistic individual suffers a shattered self-esteem whenever any of his thoughts or acts are in any way imperfect or assailable. The self-esteem of the narcissistic individual is based upon how much he is admired and praised by others. The self-regard of the

compulsively ambitious person is proportionate to his material achievements. The neurotic who has an unquenchable thirst for power is secure only when he is strong and invulnerable and when he dominates and controls others. The compulsively modest soul is secure within himself only when he makes himself inconspicuous. It is apparent that unless we know the determinants of the patient's self-esteem we may be unable to help him overcome his problems.

Whether or not a deep analysis is necessary in all cases is open to question. There are some persons borderline to psychotic whose egos may be unable to tolerate the powerful emotions released by analytic therapy. On the other hand, deep unconscious modes of mental functioning may express self-devaluation in terms of primitive symbolism, as, for instance, in terms of phallic loss or possession. Deep fantasies may involve a fear of emasculation in the male and a contempt for femininity in the female, and there may be attempts to restore a fancied damage to oneself by various rituals, compulsive phenomena, and physical symptoms whose meaning can be understood only when their symbolism is translated.

Perhaps the best tool available for the rebuilding of self-esteem is the interpersonal relationship that develops between the physician and patient during the therapeutic process. In this the patient lives through the drama of his attitudes toward himself and others and is provided with insight into how he functions while re-experiencing his customary patterns of behavior. During treatment the patient learns the dynamic function of this low self-regard as well as the defensive devices he employs to protect himself from his helplessness. Psychotherapy is most effective when it ceases to be a pallid intellectual process in which the physician attempts to enlist the logic of the patient to explain away his symptoms. Rather, it is through the emotional experience of the patient's relationship with another human being, who happens to be the doctor, that the patient reorients himself to the world and rebuilds his attitudes toward himself. Self-esteem is so inextricably intertwined with the entire character structure that an analysis of the personality in operation as it functions in the therapeutic relationship is an almost indispensable condition in the process of cure.

Summary

During psychotherapy it may become apparent that the central neurotic process is a tremendously devaluated self-esteem, of which the patient is only partially conscious. This diseased attitude toward the self sets into motion defensive devices such as detachment, manifold inhibitions, inordinate dependencies, masochistic, paranoid, and grandiose strivings. How to rebuild the patient's devaluated self-esteem becomes a problem of vital importance. Therapeutic attempts aimed at exposing the depth and destructiveness of the patient's contemptuous image of himself may be both ineffectual and dangerous. Similarly, removal of his protective devices, such as his dominancy, power strivings, and needs for perfectionism, may precipitate panic, for they are defensive mechanisms which shield him from helplessness and isolation. A probing of the genetic determinants which have produced his helplessness may accomplish little other than to provide him with a scapegoat on which he can shift responsibility for his condition. Reassurance and praise frequently fall short of their therapeutic goal, and attempts to acquaint the patient with the fact that he is not so contemptible as he had supposed and therefore need not employ his neurotic protective devices are usually without benefit.

The most potent therapeutic device available is the emotional experience that develops in the interpersonal relationship between the physician and patient. In this relationship the character structure of the patient unfolds itself and the symbols by which he measures his estimate of himself are analyzed as he experiences them actively. The extent of the re-evaluation of the self occurs in proportion to the ability of the patient to gain insight into his character structure and his ability to reorient himself to others during the experience of his relationship with the physician.

HYPERTENSION AFTER FORTY

On the basis of blood pressure readings on 14,849 persons over 40 years of age, Commander A. M. Master (M.C.) USNR; H. H. Marks, A.B., Bethesda, Maryland; and Captain Simon Dack (M.C.), Army of the United States, report in the *Journal of the American Medical Association* that they believe "The presence of hypertension at age 40 and over is so common that a mild degree and perhaps even a 'moderate' degree can no longer be considered abnormal. Limits of normal blood pressure at these ages should therefore be raised. . . ."

PSYCHIATRY IN A GENERAL HOSPITAL

C. P. Oberndorf, M.D., New York City

At a dedication in the fall of 1941 of the new buildings of a mental hospital devoted primarily to the care of recoverable mental cases, one of the speakers advanced the idea that more hospitals of this type would obviate the necessity in the future for huge institutions devoted to the care of the chronically mentally ill. The hope for the prevention of mental disease, however, rests not particularly in hospitals where hopeful forms of mental disease are treated, but far more specifically in agencies in closer and more direct contact with the whole population than any hospital for psychiatric cases can ever be. I refer to common and collegiate schools, general hospitals, and particularly to outpatient psychiatric clinics where emotionally disturbed and confused persons, still active and attempting to carry on their life tasks, are first seen.

Universality of the Psychic Function in Disease

Before the days of intense specialization, which we can date from the beginning of the present century, the family physician treated a person afflicted with any form of disease and was likely to care for the same patient many times during his life, attending all his illnesses from birth to death. Through these frequent contacts he knew many characteristics of his patient's psychic make-up, many facts bearing upon his immediate and past social difficulties, and the most important influences of heredity and environment to which he had been subjected from childhood. Through this he had learned how the patient as a person met physical injury, personal loss, or reacted to an infectious disease.

The necessity for expert skill in diagnosis and operation fostered the tendency toward specialization, but the specialist no longer observed the patient in a sickroom that reflected his own personality, and perhaps also the personality of his forebears. Often he saw him for the first time in a hospital bed divested of all significant elements including even his normal manner of dressing. The physician thereby lost valuable aids in planning the treatment. To be sure, he might detect, or learn from interns or nurses, that the patient was of the apathetic, stubborn, dull, uncooperative, anxious, or restless type. But even a most painstaking history by the average intern would not be likely to indicate what manner of man had a broken leg or a pneumonia.

Furthermore, the visiting physician of a hospital who supervises the treatment on the wards often of necessity sees relatively little of the patient after a satisfactory diagnosis has been established and treatment has been outlined. Only when some acute situation arises which redirects his attention to the medical problem does he again study the patient as a person. To a lesser degree this applies to private patients in hospitals—especially surgical cases. This notwithstanding, people who are patients in hospitals have the same peculiarities and needs for individualization that the family doctor learned to consider through long contact.

The Scope of Psychiatry

To what extent is it possible for still another specialist, the psychiatrist, in this plethora of specialists successfully to approach this person-patient in the general hospital isolated from his emotional attachments? Hocking, in his recent essay, remarks: "The psychiatrist is the embodiment of applied science, attempting to deal with the ravages of the mistakes of science. What he finds is that more science is not enough."[1] As a rule, the psychiatrist's services are called for only when the refractory or apathetic attitude of the patient is obviously interfering with the success of therapy, or when recognized procedures have failed to establish a satisfactory diagnosis.

The psychiatrist begins his work under a handicap because the environment of the ward is so mechanical that the patient becomes a part of the iron bed on which he lies. This is reflected in such terminology as "Bed 6 has a Ca." To be sure, the human element is often effectively introduced through the nursing and the resident staff or, in a few hospitals, through the social service interview. However, the emphasis in the training of the nurse and intern in the general hospital has usually been put on physical procedures and physical methods. It is therefore difficult, with the heavy preponderance of interest in physical procedures, for instructors in psychologic medicine to convey the idea that psychiatry is essentially concerned with the emotional constitution of the patient and his subjective reactions. So it is understandable that when a student physician or nurse first hears

Author's Note: Elaborated from a lecture delivered at the New York Psychoanalytic Institute on April 24, 1942. The observations are based upon more than twenty-five years' experience at Cornell University Clinic (1909–1922), Bellevue Hospital (Second Division, 1914–1922), and at Mount Sinai Hospital and the Out-Patient Clinic of Mental Health (1913–1939).

of dementia praecox, his previous conception of diagnosis makes him regard this condition as a disease which the patient has acquired, as he might acquire the mumps, not as a condition which is essentially the person.

It is customary for every good physician to take into consideration some of the elements called neurotic or psychotic which complicate physical conditions. Without recognizing them he could not be a good physician. The best physicians possess a strong, highly intuitive, common sense evaluation of certain emotional forces working with or against their medical and physical procedures. However, without some knowledge about the mechanisms which are operating, the physician's intuitive evaluations cannot carry him very far in the management of neurotic conditions, the depressions, or the negativism that complicate disease.

Most practitioners will agree that a large proportion—perhaps three-quarters—of their daily practice consists of treating patients with complaints due to dissatisfaction with life. These complaints are referred by the disgruntled person to various organs of the body, most frequently as headaches, gastrointestinal disturbances, or cardiac dysfunction. The reassurance of the patient by his doctor, in whom he has confidence—or, in psychoanalytic terminology, "to whom he has a positive transference"—often suffices to allay temporarily the dissatisfactions converted into bodily complaints, the "sick and tired feelings," or "faint heart." Many of these patients can be treated only by accepted remedies and would scoff at the suggestion that their stomachache represented a psychologic "belly-aching." On the other hand, the average physician is reluctant to admit the limitations and inadequacy of his therapeutic skill and may continue to treat on a physical basis symptoms which he may suspect to have a strong emotional content—sometimes for fear of offending his patient.

Transference in a Hospital Ward

In the patient-doctor relationship with the family doctor, a certain degree of confidence is gradually established. Perhaps the very choice of the particular doctor, when there is more than one in the town, indicates an empathy which the patient has for that physician. This may be for one of many reasons, but the two most obvious and frequent would be an identification of the physician with a firm, dependable father, or a good, sympathetic mother.

In the unconscious, almost every illness, even a broken leg sustained in an automobile accident, is associated by the patient with a feeling of punishment. It is often accompanied by an unexpressed feeling of guilt and a search for the moral cause of the punishment. The physician becomes an agent, paternal or maternal in pattern, who can be relied upon to absolve as well as to heal. Patients with deep religious convictions may invest the hospital of their faith, the Sacred Heart, Baptist, or Israel, with additional potentiality for cure, absolution, redemption.

However, the patient's choice of a hospital, when there is a choice, is based upon confidence in a relatively abstract idea of a group. "The ——Medical Center is a good place." Here the confidence resides in a concept of strength and power rather than in a single living person with human interest. Although confidence in the hospital may be strong, there can be no direct evidence of sympathy and reassurance from the hospital to the patient comparable to that of human interplay. This the patient always consciously or unconsciously expects and usually receives from the private physician of his choice. To obtain such needed reassurance the hospitalized patient may unconsciously exaggerate his symptoms based on physical pathology, following the mechanism of secondary gain through illness, to satisfy an urgent need for attention.

Thus the psychiatrist who approaches the patient in the environment of a hospital public ward is handicapped by the fact that the primary transference has already been made to the abstract concept of a group of which he, the individual physician, is a comparatively minor force. The constant impact on the patient of the multiformed forces of this hospital environment makes extremely difficult any establishment of a strong transference to the psychiatrist. In addition, the psychiatrist cannot avoid having the little positive transference remaining with the patient become diffused among the various individuals with whom the latter comes in contact.[2]

Other conditions also tend to make the psychologic approach to the hospitalized patient troublesome. For instance, even the most intelligent person has a desire for the quickest form of relief from his suffering. This wish, in persons whom one would least suspect, may be deep and urgent and may take the form of a hope for the magical disappearance of the illness. The faith in magic is psychologically closely associated with confidence in the powerful father or indulgent mother, but the element of animism is also included in it. During the centuries, such primitive animism gradually became associated with pills and medicines, and later with surgery, electricity, radium, complicated-looking apparatus, etc. At the moment, magic resides in vitamins.

A patient in his iron bed, whose symptoms are primarily neurotic but who sincerely regards

them as physical, generally has a belief in and a desire for some magical cure beyond that which the average patient expects. He is prone to be envious of any elaborate treatments which other patients receive. Unless he has become disappointed in the failure of these physical ministrations to produce results or is beginning to feel that his worries may have caused his physical troubles, he is not likely to be ready for and to welcome the new physician with a psychologic approach.

Even though the patient is fairly receptive to a psychiatric approach and the psychiatrist does make some impress, he still remains subject to influences which tend to hinder the psychiatrist's aims. Quite unwittingly, the interns and nurses may make remarks that indicate to the patient that what he needs is another metabolism test, a different type of colonic irrigation, a new sedative or hypnotic.

Also, the privacy of a strictly personal conversation is difficult to maintain behind bed curtains. The patient becomes restless, wary, and self-conscious, thinking that the occupants of adjacent beds are listening. For satisfactory work the psychiatrist is entitled at least to a consultation room in which his investigation into a patient's emotional problems can be carried on in quiet and at leisure. Every type of neurotic or psychotic patient finds his way into a general hospital either because of his psychic condition or because of some definitely physical affliction. Hence, a necessity exists in any large hospital for a few private rooms where sensitive, neurotic patients can be temporarily isolated for study.

When the nature of the emotional problem has been determined and the symptoms are found to be preponderantly psychologic, the patient should be transferred as soon as possible to the outpatient clinic for further treatment.

One of the most discouraging aspects of psychiatric work in a general hospital is the fact that it frequently cannot be continued for any length of time. The main cause for this is the necessity of vacating the bed as soon as the patient is sufficiently well to leave the hospital. Another frequent reason for discontinuing the psychiatric work is the need which the patient may develop for intensive medical or surgical treatment because of some intercurrent affection. The psychiatrist may have spent several hours obtaining certain social and personal facts, but when the patient is transferred to the department which his predominant symptom indicates, this information becomes almost useless because the patient's contact with the psychiatrist ceases. This is not only a waste of time for the psychiatrist but often conditions the patient against future psychiatric approach. Such psychiatric work is a frequent occurrence. It is comparable to scrubbing up the skin of a patient for an operation which never occurs, and many patients with psychiatric problems are easily rubbed raw.

Psychiatric Therapy in Outpatient Clinics

The effectiveness of an outpatient clinic depends first and foremost upon leadership and personnel. One may then say that the personnel depends upon the leadership, for without vigorous, continuous, and imaginative leadership such a clinic soon falls into a monotony of routine which eventually is reflected in perfunctory care and desultory interest in the patients.

For effectiveness in all psychiatric therapy, whether in private practice, clinics, or general or psychiatric hospitals, there must be a continuity in treatment and in philosophy of approach. By this I do not mean to say that there is only one philosophy of approach, such as suggestion, persuasion, discipline, or psychoanalysis with its emphasis on mechanisms and the unconscious. Nor is any one philosophy adaptable to all patients. In general, it must be the function of an outpatient clinic as a whole, and of each individual physician, to give the patient reassurance and support, especially at the beginning of the contact, regardless of what the psychiatric disorder may be.

If it is true that such continuity and support are essential, then it is evident that for the therapy to be effective the same clinic physician should be available to the patient at not too infrequent intervals. Both private and clinic experience indicate that for most cases a visit three times a week is sufficient to meet the needs at the beginning of treatment or during acute phases arising later. Subsequently, the frequency of visits may be tapered off.

Sometimes the transfer of a patient from the hospital to the outpatient clinic should not be made directly. Often it is inadvisable to do this because he must return to a disturbing situation in his home. This is particularly the case if the patient is still in need of moral support or quiet housing. For such neurotic and prepsychotic patients, a special boarding or nursing home in the city is needed—a "half-way house." Such a home would surely protect many patients against going further on the way toward a closed mental hospital. These patients would be drawn not only from those who had been previously observed in general hospital wards but would also include the ones who frequently apply directly to the outpatient department for treatment. Other patients would be persons who are not imminently threatened with psychotic disorders but who nevertheless cannot or should not be

cared for in their own homes because of the symptoms of their neurotic illness. The house should have facilities for group activities, occupational therapy, and recreation, and the general atmosphere should be conducive to reassurance and regularity.

Patients would be permitted to go to work or to vocational workshops, actively help in the care of the house, etc. This idea is not new. It has been in actual operation in large converted houses in Leningrad and, more elaborately, years ago at a home in Zehlendorf, near Berlin. The patient's psychiatric treatment initiated at the hospital or clinic would be continued in the outpatient department of the hospital where he was originally observed, and preferably by the physician who made the first contact. With the benefits of a boarding home the scope of the treatment of outpatient clinics could be extended further and further in its function as an outpost against the threat of severe mental disease.

In outpatient clinics it is possible at relatively little expense to construct small cubicles or rooms where the psychiatrist can establish a confidential relationship with the patient. Most patients in a psychiatric clinic are likely to come expecting medicine or physical implementation. Often only indirect psychotherapeutic methods of approaching the patient are effective, for it is not easy to convince those habituated to diets and medicines that their disease is functional. The psychogenic origin of the symptoms can be established and accepted by the patient only in a minority of cases.

Treatment must be largely re-educational, persuasive, and supportive, re-enforced by a social service department that is ready to help the patient to complete the physician's suggestions and that is not above offering financial aid in cases of need. Although Benjamin Franklin said it years ago, it is still extremely "difficult for an empty bag to stand upright." I might add that unless each bag is filled with something more substantial than psychoanalytic interpretation it will seldom make an effort to stand erect but will go elsewhere to be filled—even with rubbish.

Occupational therapy in the outpatient clinic is of value not only as a direct curative agency but also as a socializing center. I believe that it would be found correct, if one were to question the patients, that they often attend the occupational therapy room not for the baskets they weave or the brass they hammer but primarily to meet other people and to escape from the tension of their homes. This is understandable, for in most homes a neurotic person is something of a nuisance, and in that home is usually to be found the irritating influence, a person or a situation, which has kept the neurotic's complaints alive and active.

Extension of the social influence of the clinic can be made through the establishment of clubs for patients. An interesting experiment at the Outpatient Clinic of Mount Sinai Hospital has indicated that many patients who are handicapped either intellectually or emotionally much prefer association with people of their own level with whom they feel on a par than with others better adapted socially with whom they feel inadequate and excluded.[3]

Psychoanalytic treatment can profitably be given in an outpatient clinic in selected cases when the person harboring the neurosis is intelligent, not too old, and when the home and occupational situation permit him to come regularly three times a week for at least three-quarters of an hour. I have seen good results obtained in such cases where the analyst was competent and the patient was adapted to his treatment. However, it is futile to attempt to convey to the average clinic patient psychoanalytic dynamics which must appear to him very bizarre and confusing, and which usually are slowly accepted by the most intelligent private patients who visit the analyst five times a week.

The psychiatric clinic should serve as a temporary anchorage for those patients who are emotionally and mentally adrift, and, when properly conducted, it does. The pilot for each patient is his individual psychiatrist, who ideally should see him through the voyage of illness to the harbor of cure.

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The elderly tuberculous are more dangerous to their grandchildren than to their children.—*A. Morland, M.D., in Tubercle*

Confucius might have said: "A good x-ray picture is worth a thousand rales."—*Nassau Medical News*

TREATMENT OF ANGINA PECTORIS BY TESTOSTERONE PROPIONATE

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WITHIN the past three years some reports have appeared in the literature stating that symptoms of cardiovascular disease can be relieved by testosterone propionate* given intramuscularly. The first to call attention to the beneficial effects of this hormone on vascular disease were Edwards, Hamilton, and Duntley[1] in 1939. They found by spectrophotometric study that there was a lack of arterial blood supply in the skin of castrated men. If such patients are given testosterone propionate, the blood supply to the skin increases. They also observed beneficial results of this product in 3 cases of Buerger's disease and in 4 cases of arteriosclerosis, all of which had intermittent claudication. The claudication was either greatly diminished or entirely abolished, and the peripheral blood supply was improved.

In 1940, Walker[2] reported beneficial effects of this hormone, as well as of other sex hormones, not only in peripheral vascular but also in cardiac disease. The anginal syndrome was greatly improved, and there was an increase in exercise and emotional tolerance. He even claimed to have observed relief from paroxysmal nocturnal dyspnea, and signs of improvement in the cerebral circulation. He suggested, however, that the psychotherapeutic effect of the injection might have been responsible for some of the beneficial effects.

In 1941, Bonnell, Pritchett, and Rardin[3] reported beneficial effects of estrogenic and androgenic substances in 23 cases of angina pectoris. They cited experimental evidence to indicate that all sex hormones have a vasodilating effect on the coronary vessels, which produces the beneficial results.

This was followed in 1942 by reports of Lesser[4] and Hamm[5] on the beneficial effects of testosterone propionate in angina pectoris, and of Walker[6] on the beneficial effects of this hormone as well as of estrogenic substances in all manifestations of cardiovascular disease. The last author also observed a drop in blood pressure in cases with hypertension, and many other symptoms due to disturbances caused by cardiovascular disease were relieved.

We carried out observations on the effect of testosterone propionate in 20 cases of angina pectoris, and feel that the results are encouraging enough to warrant this report.

Selection of Cases and Procedure

The patients selected were men, varying in age between 40 and 65 years, exhibiting unmistakable evidence of the anginal syndrome in a rather marked degree. Twelve cases had at least one episode of coronary occlusion, and several of these had two or three such episodes within a period of one to five years previous to our observations. All cases showed a markedly hyperactive cardio-inhibitory carotid sinus reflex, previously described by one of us,[7,8] which was used as one of the criteria of the presence of coronary disease. Twelve cases showed definite abnormalities in the electrocardiogram.

The anginal syndrome in all the cases was precipitated by comparatively slight exertion and by emotional upset. Many of the patients could not walk more than one block without the use of nitroglycerine. The injections were given in doses of 25 mg. of testosterone propionate dissolved in sesame oil, twice weekly.

To rule out as far as possible the psychotherapeutic effect of the injection itself, regardless of what the product might be, a control was used in 6 cases. These patients received injections of the testosterone propionate in sesame oil for a period of about four weeks, alternated by a similar period when only sesame oil was used. The ampules all looked exactly alike and the patient was not aware of what he was getting. In some of these cases the testosterone propionate injections were again resumed after sesame oil alone was used over a certain period.

Observations

There was unmistakable evidence of symptomatic relief from the anginal syndrome in 11 cases. The precordial pain greatly diminished, and there was a feeling of well-being. Patients who could not walk more than one block before without the use of nitroglycerine were able to walk many blocks without resorting to the use of this drug. In 5 other cases the response was less spectacular, but the patients nevertheless appeared to have had some relief. They could walk a greater distance than before without the use of nitroglycerine. In 4 cases no relief whatsoever was obtained.

Relief from symptoms, when present, con-

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* The testosterone propionate used in this study was kindly supplied to us by the Ciba Pharmaceutical Products, Inc., Summit, New Jersey, under their trade name of Perandren.

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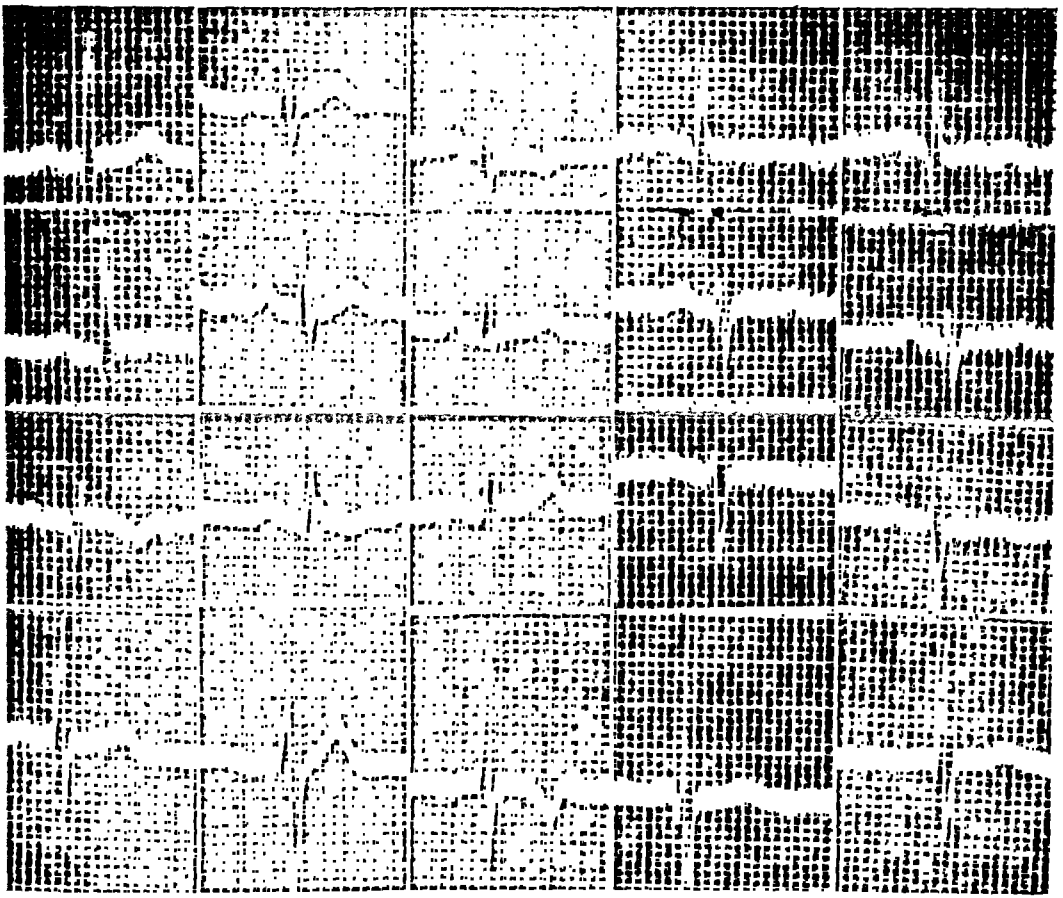


FIG. 1 FIG. 2 FIG. 3 FIG. 4

tinued as long as the testosterone was used, and in some cases persisted for about two to four weeks after the medication was discontinued. The symptoms then returned with increasing intensity until they became as severe as they were before the treatment was started.

Although symptomatic relief was definite, objectively no changes were observed in the physical and electrocardiographic findings. The size of the heart, its rate, rhythm, and sounds remained about the same. The hyperactive cardio-inhibitory carotid sinus reflex was not diminished. There appeared to have been a tendency to a reduction of the previous average blood pressure level. In view, however, of the marked spontaneous fluctuations in blood pressure in many cases, as shown by one of us,[9,10] we are not sure that the average lower blood pressure level observed under testosterone propionate therapy was due to such treatment.

Because of the striking difference in response to testosterone propionate as compared with that to plain sesame oil in the control group, we are presenting this group in more detail.

Case Reports

Case 1.—A 50-year-old man complained of severe precordial pain after walking as little as three to five blocks and after a heavy meal. The condition followed an attack of acute coronary occlusion three years before and was getting progressively worse. Only nitroglycerine gave temporary relief.

The physical examination showed slight enlargement of the heart to the left, the rate was 60 to 72 per minute, and the rhythm was regular. The first sound was diminished in intensity, and the second sound was accentuated. There was a moderately

hyperactive cardio-inhibitory carotid sinus reflex. The peripheral blood vessels were markedly sclerotic, and the blood pressure was 140 to 150 systolic and 80 to 96 diastolic on different occasions. The electrocardiogram (Fig. 1) shows an iso-electric T wave in the second and a negative T wave with a large Q wave in the third lead. These are undoubtedly the remains of a posterior left ventricular infarction.

The patient received 25 mg. of testosterone propionate twice weekly. After the third injection he showed marked symptomatic relief. He could walk 2 or 3 miles without discomfort. The injections were continued for about six weeks. During this period the pain occasionally recurred in a mild form after considerable exertion.

The testosterone injections were then stopped, and the patient was told to return to the clinic if severe pain returned. He came back about five weeks later when the pain became severe again, and he was then given plain sesame oil injections twice weekly for a similar period, with no relief from symptoms.

During the time that he received the testosterone, no changes were noted in the physical findings, and the blood pressure was 110 to 140 systolic and 80 to 90 diastolic.

Case 2.—The patient, a man 46 years old, was under observation at the clinic for a period of six years. He complained of recurring retrosternal pain radiating to the left elbow and forearm, which came on after he had walked four or five blocks.

The physical examination showed nothing abnormal in the heart except for some muffling of the first sound. A teleroentgenogram showed the heart and the great vessels to be normal. The electrocardiogram (Fig. 2) showed some slurring of the QRS complex, and the voltage of this complex in the 3 conventional leads was within the minimum limit of normal. The peripheral vessels showed slight sclerosis, and the blood pressure was 90 to 120 systolic and 56 to 80 diastolic. He had a moderately hyperactive cardio-inhibitory carotid sinus reflex.

The only medication that gave him relief was nitroglycerine. Many other medications were tried without definite relief.

He was given sesame oil injections for about six weeks, twice weekly, without relief of symptoms. He was then given testosterone propionate injections for three weeks, twice weekly, without noticeable change in symptoms. The pain continued practically the same as before.

Case 3.—A man, 42 years old, complained of precordial pressure radiating to the left arm and dyspnea on walking one or two blocks. These symptoms were of one year's duration and were relieved by rest and nitroglycerine.

The heart was of normal size, the rate was 65 to 84, the rhythm was regular, and sounds were of good quality with accentuation of the second sound at the aortic areas. There was a markedly hyperactive cardio-inhibitory carotid sinus reflex. The blood pressure was 140 to 150 systolic and 80 to 90 diastolic. The electrocardiogram (Fig. 3) shows left axis deviation, slight depression of the QRS-T segment in the first and elevation in the third lead and negative T wave in the first and fourth precordial leads.

He was given fourteen sesame oil injections within a period of seven weeks with no improvement in symptoms. Testosterone injections were then given in doses of 25 mg. twice a week. After four injections the patient had greatly improved and was practically free from symptoms for a period of seven weeks during which he received this therapy. The physical findings, however, remained unchanged and the blood pressure was 100 to 120 systolic and 70 to 84 diastolic.

Case 4.—A 54-year-old man complained of severe cramp-like precordial pain radiating to the left arm, with dyspnea, and dizziness. The symptoms appeared after the slightest exertion—such as walking two blocks—and were getting progressively worse within a period of one year. Nitroglycerine was the only drug that gave temporary relief.

The physical examination showed moderate enlargement of the heart. The rate averaged between 70 and 84 per minute, and the rhythm was regular. The first sound at the apex was moderately diminished, and the second aortic sound was accentuated. There was a markedly hyperactive cardio-inhibitory carotid sinus reflex. The peripheral blood vessels were moderately sclerotic, and the blood pressure was 160 to 190 systolic and 100 to 110 diastolic. The electrocardiogram merely showed left axis deviation.

The patient received 25 mg. of testosterone twice weekly. After two injections the symptoms were greatly relieved, and after the third the patient had hardly any pain on exertion. He claimed that he felt better than he had in the past three years. He could walk a mile or more without resort to nitroglycerine and without pain. The physical findings remained the same, however, and the blood pressure was 134 to 180 systolic and 90 to 110 diastolic.

Following sixteen injections of testosterone, we switched to sesame oil injections twice weekly. Three weeks after the last injection of testosterone and while continuing the sesame oil, the patient stated that he again had considerable pain which became progressively worse as the sesame oil injections were continued.

Case 5.—A man, 64 years old, complained of squeezing pains in the precordial region radiating to both arms and fingers, appearing on the slightest exertion, and even at rest. He had been forced to stop work four years before. On two occasions two years apart, he was hospitalized because of the severity of the pain. Only nitroglycerine gave temporary relief, and he was in the habit of taking 8 or 10 $^1/_{100}$-grain tablets daily.

He had moderate enlargement of the heart. The rate was 62 to 78 per minute, and the rhythm was regular. There was a systolic murmur at the apex and the sounds were accentuated. The cardio-inhibitory carotid sinus reflex was markedly hyperactive. The peripheral blood vessels were grossly sclerotic, and the blood pressure was 100 to 140 systolic and 70 to 80 diastolic. His electrocardiogram showed merely left axis deviation.

After he received two injections of 25 mg. each of testosterone propionate the first week, the pain greatly diminished. As the injections were continued, the patient was able to walk from the trolley to the hospital, about four long blocks, without the aid of nitroglycerine. Formerly he had had to stop three or four times on the way and had had to resort to the drug each time to get relief. He was also able to sleep through the night without being awakened by his pain. The physical findings remained unchanged during this period and the blood pressure was 110 to 130 systolic and 70 diastolic.

After fifteen injections of testosterone he was given sesame oil injections twice weekly. Four weeks after discontinuing the testosterone, he had a recurrence of precordial pain which gradually grew worse, and he again had to resort to nitroglycerine and a great deal of bed rest.

Case 6.—A 50-year-old man complained of pressing pain in the precordium which occurred on exertion and at rest, with dizziness of three years' duration. None of the ordinary medication gave relief.

His heart was of normal size, the rate was 72 to 80 per minute, and the rhythm regular. The first sound was diminished in intensity and the second accentuated, A_2 being of ringing quality. There was a moderately hyperactive cardio-inhibitory carotid sinus reflex. The peripheral blood vessels were markedly sclerotic and the blood pressure was 130 to 180 systolic and 80 to 90 diastolic. His electrocardiogram (Fig. 4, Section A) shows left axis deviation and a very low voltage T wave in the three conventional leads. Section B, obtained six weeks after A, during the testosterone propionate therapy, appears to show slight improvement in the T wave. The changes, however, are of insufficient degree to be given significance.

He received 25 mg. of testosterone propionate, twice weekly, over a period of seven weeks. During this period he was free from pain. Relief came after the third injection. The patient was able to walk as much as a mile without discomfort. He was also able to do a great deal of work around his home without pain. His blood pressure varied from 110 to 175 systolic and 60 to 80 diastolic during this period, but no other changes were noted in the physical findings.

The injections were then discontinued, and the patient was told to return when pain recurred. He has not returned to the date of this writing, about two months later.

Case 7.—The patient, a 57-year-old man, complained of severe pressing precordial pain for two years, which was present at rest and became worse on exertion. Temporary relief was obtained only with nitroglycerine.

His heart was of normal size, the rate was 80 to 84 per minute, and the rhythm was regular. There was a systolic murmur at the apex and aortic area. The first sound was diminished, and the second aortic sound was accentuated. There was a markedly hyperactive cardio-inhibitory carotid sinus reflex. The peripheral blood vessels were markedly sclerotic and the blood pressure was 140 systolic and 70 to 80 diastolic. The electrocardiogram was normal.

He received 1 cc. of sesame oil twice weekly for seven weeks. There was little change in his symptoms although now and then he claimed to have had some relief. It must be remarked, however, that during the entire period in which he received these injections he did not work and rested most of the time. Whatever relief he experienced might well be due to this cause, as well as to the psychotherapeutic effect of the injection. His blood pressure varied from 90 to 130 systolic and 70 to 75 diastolic during the injections.

Comment

To evaluate any medication in the treatment of the anginal syndrome we must consider various factors that may influence its symptomatology. Relief obtained is often erroneously attributed to the medication where other factors may be responsible.

Of the factors to be considered, the most important one is the psychologic effect of the new drug, especially if given by injection. Other factors are the relative amount of rest and relaxation that the patient is receiving during the treatment as compared to that before treatment; the general constitutional and mental state of the patient, which varies from time to time and which has an influence on the perception of pain; the care as to food, the digestive apparatus, and so on. One has only to look at the array of drugs and medicaments that were recommended in the past for this syndrome and highly praised by their proponents, but were discarded later as practically useless. Case 7 is one in which relief might be attributed to a material which has no therapeutic value, if no consideration is given to the other factors which may be responsible for the relief.

It is for these reasons that we report the apparently definite therapeutic effects of testosterone propionate in some cases of the anginal syndrome with considerable hesitancy and caution. We do not wish to be too optimistic from the results on the limited number of cases that we observed. Although our success has not been as frequent, nevertheless our findings appear to substantiate the claims of other observers, mentioned in the early part of this paper, of the beneficial effects of testosterone propionate in angina pectoris. The number of cases that showed a definite response is relatively smaller in our series. We believe that it is worthy of further trial in a greater number of cases.

There are two objections to the use of the product. One is the cost, which is very high, and the other is the necessity for its parenteral

use. These objections are partly overcome by the fact that effective results may be obtained by administering the product only twice weekly.

If further use of the product in the anginal syndrome proves it to be successful even in the proportion of cases we observed and if it can be produced in a form suitable for oral use and at a cheaper price, it may prove to be a very valuable adjunct in therapy of the most troublesome form of cardiovascular disease.

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EXAMINATIONS IN OBSTETRICS AND GYNECOLOGY

Applications for the 1944 examinations of the American Board of Obstetrics and Gynecology are being received at the office of the secretary, Dr. Paul Titus, 1015 Highland Building, Pittsburgh, Pennsylvania. Booklets of information regarding Board requirements and examinations, together with application forms, will be sent upon request.

All applications for the year 1944 must be in the Secretary's Office not later than November 15, 1943, ninety days in advance of the Part I examination date.

Candidates are required to take both the Part I and Part II examinations. The Part I examination consists of the written paper and the submission of twenty-five case-history abstracts, and will be conducted on Saturday, February 12, 1944. This examination will be arranged so that the candidate may take it at or near his place of residence. Upon the successful completion of the Part I examination, candidates are eligible for the Part II examination, which consists of an examination in pathology and an oral examination. This is given at the annual meeting of the Board once each year, the time and place of which will be announced later.

The Office of the Surgeon General (U.S. Army) has issued instructions that men in service who are eligible for Board examinations be encouraged to apply and that they request orders to "detached duty" for the purpose of taking the examinations whenever possible.

The annual meeting of the American Board of Obstetrics and Gynecology was held at Pittsburgh from May 20 to May 25, at which time 108 candidates were certified.

A number of changes in Board regulations and requirements were put into effect. Several of these changes are designed to broaden the requirements for candidates in service. Examples are the allowance of a stipulated amount of credit toward special training requirements for men in service and assigned to general surgical positions, special training allowances on a preceptorship basis for men assigned to obstetric or gynecologic duties in military hospitals and working under the supervision of diplomates or recognized obstetrician-gynecologists, as well as credit toward the "time in practice" requirement of the Board to be allowed for time in military service.

The Board will no longer require a general rotating internship, but will now accept a one-year intern service, although the rotating internship is preferable. Such services must be in institutions approved by the Council on Medical Education and Hospitals of the A.M.A. Lists of such institutions are published regularly in the Educational Number of *J.A.M.A.*

The privilege of reopening applications by candidates who have been declared ineligible has been extended to two years from date of filing the application, instead of one year.

The Board has ruled temporarily to excuse men in military service from the submission of case records at the stipulated examination times, thereby permitting them to proceed without further delay with the Board examinations. This does not obligate the Board, however, to waive the case-record requirement for such candidates. Plans have been made to provide similarly for service men upon their eventual discharge from the armed forces and to permit the greater use of operations done while in residency or in civilian practice before the war.

Prospective applicants or candidates in military service are urged to obtain from the Office of the Secretary a copy of the "Record of Professional Assignments for Prospective Applicants for Certification by Specialty Boards," which will be supplied upon request. This record was compiled by the Advisory Board for Medical Specialties and is approved by the offices of the Surgeons General. It will enable prospective applicants and candidates to keep an accurate record of work done while in military service and should be submitted with the candidate's application, so that the Credentials Committee may have this information available in reviewing the application.

Applications and bulletins of detailed information regarding the Board requirements will be sent upon request to the Secretary's Office, 1015 Highland Building, Pittsburgh, Pennsylvania.—*Paul Titus, Secretary*

INTRACRANIAL ARTERIOGRAPHY WITH RAPIDLY EXCRETED IODINE COMPOUND (DIODRAST)

J. Lawrence Pool, M.D., and Stewart Alexander, M.D., New York City

INTRACRANIAL arteriography, a useful diagnostic procedure, had fallen into disrepute until the present time because the dye formerly employed (thorium dioxide or thorotrast) proved to be radioactive. Thorium dioxide (thorotrast) is not to be confused with the *iodine* compound, *diodrast*, used by us and described in the present communication. While somewhat similar in name, the two substances have entirely different characteristics. Diodrast, commonly used for intravenous pyelography, is not radioactive and is entirely eliminated from the body within a few hours after intravenous or intra-arterial injection. Furthermore, in weak concentration it has not proved harmful to the blood vessels or to the organism as a whole, even when introduced directly into an internal carotid artery. We have used diodrast, with no ill effects, for purposes of intracranial arteriography in 9 cases. (A total of 30 injections of from 8 to 15 cc. apiece were made.) The procedure has obvious merit for the localization of intracranial aneurysms, angiomata, neoplasms, etc.

Diodrast is 3,5 diiodo-4-pyridone-N-acetic acid and diethanolamine. It contains 49.8 per cent iodine firmly bound as organic iodide, and is the same material that is commonly used for intravenous pyelography, in which its rapid elimination by the kidneys renders it effective as a diagnostic agent. We have used only the 35 per cent solution. In the small dosages administered (8 to 15 cc.), none of the systemic changes which have followed large intravenous injections[1,2] have been observed. There is an action of vasodilatation, which might suggest that headache would follow intracarotid injection, but this has occurred in only one of our 9 cases. There have been no significant alterations in pulse rate, blood pressure, or respiratory rhythm either during or after the injections. In the use of the 35 per cent solution, there is a negligible chance of vascular thrombosis as attested to by the infrequency of this complication following intravenous pyelography. If the stronger 70 per cent solution is used, this risk is naturally enhanced and has been known to occur, Robb and Steinberg[1] having noted 33 cases of thrombophlebitis following the intravenous injection of the 70 per cent diodrast in their first 238 cases. The 35 per cent concentration of diodrast, however, produces no perceptible injury to the blood vessels of man[3,4] or animal.[4] For this reason several injections with x-ray exposures may be made in one patient at a single sitting with no great risk or difficulty.

Priority for the intracranial use of diodrast justly belongs to Dr. Sidney Gross,[6] who recently reported a series of 10 cases in which the dye had been used. However, he injected the stronger—70 per cent—solution and noted alterations in pulse rate, subjective sensations of discomfort, and occasional convulsive manifestations in some of his patients. No such reactions were observed in our series, wherein the weaker 35 per cent concentration was employed. Reports from another source in which the 70 per cent dye was used indicate that disastrous sequelae can occur, one patient having suffered a long-standing hemiplegia and coma following the procedure, and another having shown complete thrombosis of the carotid artery when it was reexposed some forty-eight hours after the first injection of the more concentrated solution.

It may be of interest to state that our work with the 35 per cent solution was begun in July, 1939, at Bellevue Hospital, without the knowledge that others were using this substance for the same purpose. The application of the 35 per cent solution was instigated by one of us (S. A.), who had previously had considerable experience with diodrast in outlining the great vessels of the heart and lungs.[7]

A total of 9 patients comprises our series. In all of them it was possible to obtain visualization of intracranial blood vessels on the injected side of the head, although it must be acknowledged that in some of the earlier instances the visualization was not wholly satisfactory. The greatest stumbling block proved to be difficulty in coordinating the x-ray exposure with the injection of the dye. This has been largely overcome with greater experience. The cases studied were those in which a unilateral intracranial lesion was suspected. So far we have not conclusively demonstrated any pathology by this procedure.

Technic

All cases were injected by way of the internal carotid artery under local anesthesia. Preliminary medication consisted of morphine sulfate, grain $1/6$ or $1/4$, supplemented by scopolamine, grain $1/150$. After preliminary infiltration of the skin with 1 per cent procain hydrochloride, suitable drapes were sutured to the skin so that the

From the Neurological Service, Bellevue Hospital, New York City.

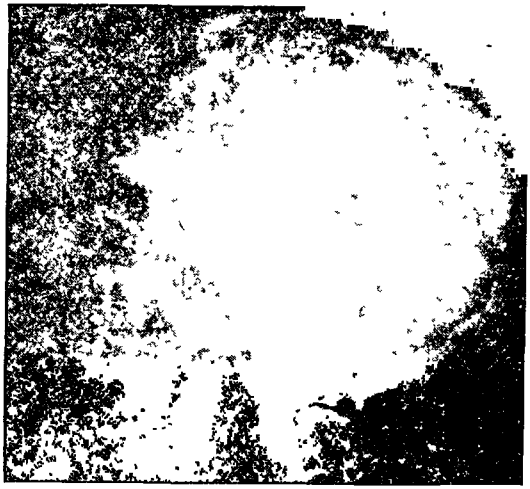


FIG. 1. Lateral view of skull showing outline of vessels of left side of brain during injection of 35 per cent diodrast into left internal carotid artery.

head could later be manipulated without endangering the sterility of the operative field. A 3-cm. oblique incision was made parallel to the sternocleidomastoid muscle, extending upward from the level of the thyroid cartilage. The incision was carried through the platysma by sharp dissection and continued by blunt dissection with curved scissors until the external carotid artery was exposed. A coarse silk ligature was then passed beneath this artery with an aneurysm needle so that it could be gently retracted, thus exposing the internal carotid.

A ligature was passed in similar fashion around the internal carotid artery, care being taken not to include or traumatize the nerves within the carotid sheath. Subcutaneous and cutaneous sutures were placed but not tied. The patient was then transferred to the x-ray room. The entire procedure was carried out on a stretcher.

When the subject was in position beneath the x-ray apparatus, the internal carotid artery was exposed by suitable retractors, and a curved No. 18 needle was inserted into its lumen. The needle was next connected to a stopcock and syringe filled with 15 cc. of diodrast. A section of rubber tubing about 4 cm. in length intervened between needle and stopcock, so that the operator's hands would not be in the line of x-ray fire. With everything in readiness, 5 to 8 cc. of dye were rapidly injected into the vessel, whereupon the x-ray exposure was begun, and the injection continued until the exposure was completed. The total dye injected amounted to from 10 to 15 cc. The x-ray exposure lasted one second, at 200 millivolts. A Bucky diaphragm was always used. From two to four injections were made on each patient at intervals of from two to five minutes. It was possible to take not only lateral views but also anteroposterior views. A sample film is shown in Fig. 1. On completion of the procedure the needle was withdrawn, the wound packed with gauze, and gentle pressure exerted for from two to five minutes This always served to control extravasation of blood from the site of puncture. The subcutaneous and cutaneous sutures previously placed were now tied and the patient returned to his bed. No drains were necessary.

In conclusion it seems worth repeating that diodrast in 35 per cent concentration is a suitable radiopaque medium for injection into the internal carotid artery, and must not be confused with thorotrast, which is no longer considered a safe dye for the purpose of angiography, intracranial, or other uses.

Summary

Intracranial arteriography can be safely carried out with 35 per cent diodrast. Stronger solutions of this dye are apparently not safe; 8 to 15 cc. of the material may be injected under local anesthesia, as many as four times at one sitting, into an internal carotid artery without ill effects.

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PARMLY FOUNDATION FOR RESEARCH

The Parmly Foundation has been established at the Illinois Institute of Technology to carry on research in hearing. The foundation, which was created through a trust fund of $300,000 set aside by the late Samuel P. Parmly, Jr., a Chicago business man, will concentrate its work on the physics of hearing and plans to cooperate with the medical profession on other aspects of the problem. This is in accordance with the plan of Mr. Parmly, who also stipulated that the research must be done at an institution of learning.—*Journal of the Association of Medical Colleges*

Clinicopathologic Conferences

DEPARTMENTS OF MEDICINE AND PATHOLOGY, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, COLUMBIA UNIVERSITY

Conducted by: Herman O. Mosenthal, M.D., and Maurice N. Richter, M.D.

Date: December 15, 1942

History

Case J70719

DR. WOODBURY PERKINS: A 70-year-old Greek man was admitted on September 29, 1942. His chief complaints were of weakness for two months and poor appetite for one month, during which time he had lost 12 pounds. For six weeks he had had 3 or 4 small stools a day and complained of a feeling of inadequacy in emptying the bowels. The stools at no time appeared to contain blood. There was no jaundice, fever, chills, vomiting, or pain. There was constant nausea, and he suffered from occasional night sweats. His past and personal histories were negative.

Physical examination revealed a moderately obese, chronically ill, tired, 70-year-old white man in no acute distress. Temperature, pulse, and respirations were normal. Blood pressure was 110/70 mm. of mercury. There was no jaundice. The pupils were slightly irregular and unequal, but they reacted to light and accommodation. The trachea deviated slightly to the right. The lungs were clear. The heart was not enlarged to percussion, and the sounds were of good quality, with a blowing systolic murmur at the apex. There was regular sinus rhythm. The liver edge, palpated two fingerbreadths below the costal margin, was smooth and slightly tender. The spleen was not felt. Rectal examination revealed a large, smooth, soft prostate.

Laboratory Data.—Blood count: hemoglobin, 15.7 Gm.; red blood cells, 4.96 million; white blood cells, 6,950; differential count—59 per cent polymorphonuclears, 28 per cent lymphocytes, 10 per cent monocytes. Urinalysis: faint trace of albumin, specific gravity 1.016, no red blood cells or casts. The blood Wassermann was negative. Blood chemistry: nonprotein nitrogen, 22.5 mg. per cent; urea nitrogen, 10.0 mg. per cent; cholesterol, 210 mg. per cent; esters, 130 mg. per cent; total serum proteins, 7.6 Gm. per cent; albumin/globulin ratio, 4.8/2.8; icterus index, 10.7 units; bromsulfalein, 40 per cent retention in thirty minutes, 32 per cent retention in sixty minutes

Clinical Course.—The patient was afebrile except for three occasions when his temperature rose to 101–102 F. for one day. He complained constantly of weakness, anorexia, nausea, and insomnia. The gastrointestinal series revealed the stomach to have "funnel-shaped scirrhous-like appearance of the antrum," and the colon was found to be "narrow and tubular throughout, with diminished haustrations." The barium colon enema showed "isolated diverticuli in the sigmoid." An x-ray of the chest showed the heart to be slightly enlarged to the left, and there was evidence of pleuritic thickening and adhesions at both bases with obscuration of the costophrenic sinuses.

On October 9 the patient became jaundiced. At this time the icterus index was 23.0 units, urobilin 171.7 mg., and the cephalin flocculation test was 4 plus.

During his second week in the hospital the patient was subject to insomnia, dyspnea, moderate pain in the right upper quadrant, and watery diarrhea. The stools were negative to Guaiac. His blood pressure was 110/94 mm. of mercury and the pulse 104, with occasional premature ventricular contractions. His heart had shifted to the left so that the apex beat was visible 12 cm. to the left of the sternum in the fourth intercostal space. He had moist rales at the base of both lungs. He was observed to sleep propped up against the wall with his feet hanging over the edge of the bed. In such a position, his legs became blue and edematous. An electrocardiogram showed premature contractions and left axis deviation. He was digitalized but without any perceptible improvement in his condition.

On October 14, an x-ray of the chest showed the heart to be enlarged to the left, a high right diaphragm, and obscuration of the costophrenic angles. Concerning the increased pleural thickening, the radiologist noted "probable abdominal pathology to be considered the most likely causative factor." Repeated determinations of serum proteins were normal.

Thus, as the patient went into his third and final week in the hospital, he presented the picture of a chronically ill, 70-year-old man, lying uncomfortably in bed, afebrile, dyspneic,

listless, depressed, and without appetite. He was icteric, had a symmetrically enlarged, smooth, tender liver, and had a heart enlarged to the left with the classical signs of cardiac failure which had not responded to adequate digitalis therapy. He died quietly on October 17, the evening of his nineteenth day in the hospital.

Clinical Diagnosis

Laennec's cirrhosis of the liver.
Arteriosclerotic heart disease.
Myocardial fibrosis.
Enlarged heart.
Cardiac failure.

DR. JEROME A. MARKS: Was any ascites observed?

DR. PERKINS: At one point it was believed to be present, but later the signs of fluid in the peritoneal cavity disappeared.

DR. MARKS: Was a blood sugar done?

DR. PERKINS: A blood sugar was done and was found to be within normal range.

Discussion

DR. MARKS: This case presents the interesting problem of diagnosis when meager symptoms referable to the digestive system occur in an older person, for these symptoms (anorexia, nausea, tendency to diarrhea, and weight loss) are so unspecific that they might be called by the generic term "dyspepsia."

Dyspepsia, it is important to remember, may result from disease in any system of the body in addition to the gastrointestinal tract proper. The most important of these are indicated in Table 1, and in any case of dyspepsia they must be given careful consideration before attention is finally turned to the abdominal organs.

TABLE 1

1.	Cardiovascular system
2.	Pulmonary system
3.	Genitourinary tract
4.	Metabolic disease
5.	Blood dyscrasias
6.	Lues

In this case, the *cardiovascular* system does not appear to be involved. There is no antecedent history of cardiac disease and, except for a systolic murmur, no signs of cardiac involvement. The heart size, sounds, and rhythm are all normal, as well as the blood pressure, the vasculature, and the electrocardiogram.

The *pulmonary* system may be excluded also, for though there are minor diaphragmatic and pleural changes, these are most probably referable to abdominal pathology.

The normal blood chemistry and urine examinations rule out *genitourinary* tract disease (particularly uremia) as causing this patient's symptoms, and there is no evidence that *metabolic disease* exists.

Finally, the normal blood count rules out *blood dyscrasias* (notably leukemia), and the negative Wassermann test excludes *syphilis*.

Having thus disposed of the main extra-abdominal causes of "dyspepsia," our attention is focused finally on the gastrointestinal tract, the accessory organs of digestion (liver, pancreas), the peritoneum, omentum, and retroperitoneal structures.

Let us briefly recapitulate the essential history and findings of this case—recent weight loss, anorexia, nausea, night sweats, and watery diarrhea associated with a tender mass in the right upper quadrant, together with essentially normal laboratory studies except those that point to liver involvement, such as progressive increase in the icterus index and moderate bromsulfalein retention.

Our attention is therefore drawn to the liver as the cause of this patient's symptoms, and a resolution of the nature of his hepatomegaly will probably explain the entire picture.

In Table 2, I have listed, in roughly ascending order of occurrence, the commoner causes of hepatomegaly.

TABLE 2

1.	Lues
2.	Hydatid disease
3.	Abscess
	(*a*) Amebic
	(*b*) Multiple
4.	Subphrenic abscess
5.	Hepatitis
6.	Chronic passive congestion
7.	Cirrhosis
8.	Carcinoma
	(*a*) Primary
	(*b*) Secondary

Analyzing these possibilities, we can dispose of lues at once because of the negative Wassermann test. Hydatid disease of the liver, though rare, deserves consideration because of the patient's nationality (Greek) and because of the pleural involvement as seen in the x-ray of the chest. Although there is nothing else in the history to suggest this diagnosis, I think a complement-fixation test would have been indicated if the patient had lived.

Abscess of the liver might be either of the solitary amebic type or multiple. The remote possibility of the former is suggested by the recent watery diarrhea, but except for this there is nothing in either the history or the barium enema to indicate amebiasis. Pyemic (multiple) abscess may be ruled out by the afebrile course, lack of history, and absence of leukocytosis.

These will also serve to exclude subphrenic abscess.

A much commoner cause for hepatomegaly and jaundice would be hepatitis, but this is seldom afebrile and less often fatal, unless acute yellow atrophy sets in, which obviously did not occur here. In addition, no causative factor such as the use of drugs or occupational contacts was demonstrated.

During the patient's stay in the hospital, he developed signs of cardiac failure (basal rales, dyspnea, and progressive enlargement of the heart). However, that chronic passive congestion was not the cause of his hepatomegaly is indicated by the fact that it was present on admission when the later signs of decompensation were still entirely absent.

Cirrhosis of the liver is an exceedingly likely diagnosis. This disease is common in Mediterranean people, and furthermore, the diagnosis is favored by the positive cephalin flocculation test. However, three things stand against it: first, the late onset (age 70) and the absence of any suggestive history of alcoholic excess or previous gastrointestinal symptoms; second, the absence of splenomegaly, and third (and most important), the persistently normal serum proteins and albumin/globulin ratio.

We finally come to consider carcinomas, both primary and metastatic, as the disease process from which this patient died. It appears to me that the sudden onset of anorexia, nausea, weight loss, and rapidly progressive deterioration in a 70-year-old man inescapably point to this diagnosis. Here the problem becomes one of determining (if possible) the exact nature of the lesion.

Primary carcinoma of the liver, though relatively rare ($^1/_{10}$ of 1 per cent of all autopsies) must be given careful thought. This diagnosis is rendered more probable by the rapidity of the entire process (two and one-half months to death), the smooth, enlarged liver, and the absence of splenomegaly. In my experience, carcinoma of the liver occurs in somewhat younger individuals (and averages, according to Sir Humphry Rolleston, about 49 years), though this in no way excludes the diagnosis. However, the existence of primary carcinoma is weakened on statistical grounds since secondary carcinoma occurs 20 to 40 times more commonly (Rolleston) and thus deserves our immediate consideration.

In diagnosing metastatic carcinoma, the demonstration of the primary focus is obviously most important, and to this end the gastrointestinal series will be of greatest value. The roentgenologist describes a scirrhous process in the antrum. I cannot agree to this because the shape of the stomach appears to be due to extrinsic pressure both from above and below, and no evidence of gastric neoplasm is noted. The colon too, while showing a colitis, fails to reveal any sign of neoplasm.

No primary focus having been found, we must consider the possibility that the lesion is in an organ not easily subject to visualization by the x-ray—i.e., the pancreas. Carcinoma of this organ is fairly common (six times more so than primary liver carcinoma), metastasizes rapidly, and presents a clinical picture quite similar to that given in this case. Unfortunately, there are no pancreatic function tests to support or disprove this diagnosis.

The remote possibility that the tumor mass we are feeling is not liver at all but omentum, kidney, etc., must be considered. This, however, is unlikely because of the obvious involvement of the liver as shown by the liver function tests.

In conclusion, therefore, I feel that we are dealing with a carcinoma whose primary source has not been shown to be in the gastrointestinal tract proper and which therefore may be in the liver or, what is six times more probable, in the pancreas, with secondary metastases to the liver.

Dr. Marks' Diagnosis

Carcinoma of liver, secondary to pancreatic carcinoma.

DR. HERMAN O. MOSENTHAL: One thing that comes to my mind is that the patient might have had cirrhosis of the liver which may have caused some of the gastric symptoms.

Pathology

DR. MAURICE N. RICHTER: The main interest is in the liver. This is the seat of cirrhosis and has in addition a large tumor mass in the right lobe. The center of the tumor is necrotic. It invades the diaphragm, which is adherent to the upper surface. The tumor extends posteriorly and invades the hepatic veins and inferior vena cava, the lumen of which is reduced to half its normal size. Below the point of invasion is a mural thrombus in the inferior vena cava, extending down to include the common iliac veins

A small amount of fluid was present in the peritoneal cavity, and fluid was present also in the right pleural cavity. There was moderate emphysema, and a number of other incidental findings that do not bear directly on the diagnostic problem, but are listed below in the anatomic diagnosis.

Microscopically, the tumor is a primary carcinoma of the liver, arising from liver cells. The resemblance between tumor cells and liver cells is striking, and is enhanced by the finding of

hyaline degeneration of the cytoplasm in both types of cell. This type of degeneration is not uncommon in cirrhosis.

The only metastases found were in the lymph nodes along the inferior vena cava and upper abdominal groups. The same hyaline degeneration found in the liver cells and in the primary tumor were found in the metastases.

The association of cirrhosis with carcinoma is well known and is of high but variable incidence in the reports of different laboratories.

Anatomic Diagnosis

CARCINOMA OF LIVER; ORIGIN, LIVER CELLS.
Cirrhosis of liver, portals.
Secondary carcinoma of diaphragm, inferior vena cava, and lymph nodes (pancreaticolienal and upper gastric).
Thrombosis of inferior vena cava and tributary veins.
Sclerosis of coronary arteries.
Fibrosis of myocardium.
Hydrothorax, right.
Ascites.
Chronic passive congestion of liver and spleen.
Edema of lower extremities.
Emphysema of lungs.
Trichinosis.
Indirect inguinal hernia, right, with incarceration of ascending colon.

DR. MOSENTHAL: You did find fibrosis in the myocardium?

DR. RICHTER: Yes. Death was due apparently to cardiac failure.

DURATION OF PREGNANCY

Recent regulation changes by which the classification of registrants is to be established under the Selective Service System provide for a distinction between (1) men with child (or children) with whom they maintain a family relationship in their homes, provided such status (child) was acquired prior to December 8, 1941, and (2) men with wives only or with child (or children) acquired after December 8, 1941. As a result of these provisions, it will become necessary for local Selective Service boards to determine beyond reasonable doubt in certain borderline instances whether a child was conceived before or after December 8, 1941, in order to classify the registrant correctly.

Many reports have a bearing on this problem. Wahl studied a series of 9,000 women to determine the length of pregnancy. He found that the average duration of gestation was 285 days, which is contrary to commonly quoted figures of 280 days. As pointed out by Schwarz, pregnancy actually begins the moment the female egg cell becomes fertilized and ends with the birth of the child. The time estimated as the length of pregnancy is difficult to determine on account of several variable factors: (1) the question of the time of ovulation, (2) the time of migration, (3) the lifetime of the egg and the spermatozoa, (4) the time of impregnation, and (5) the time of implantation of the ovum.

The Hotellings, who analyzed over 2,000 obstetric cases at the Sanford University Clinic, came to the following conclusions: "The conclusion of the earlier writers that 280 days is the average duration of normal pregnancy—that is, when the very short and very long durations are excluded—is confirmed by our study. However, the standard deviation from this average, which other students have estimated to be from 8 to 10 days, we find to be 11 days.

"If early births are included, the mean duration is shorter and the standard deviation greater. The mean duration from the date of coitus to birth is 271 days, the standard deviation being scarcely any less than when duration is counted from the beginning date of the last menstruation. The standard deviation also seems to be no less when duration is counted from the last day of the last menstruation, as in England and France. Accordingly, there is no perceptible gain in accuracy by reckoning even from a single coitus of known date, unless, of course, the menstruation date is unknown."

The longest possible period of gestation has not been legally defined in this country. French law recognizes the legitimacy of a child born 180 days after marriage and 300 days after the death of the husband; the German law, 181 and 302 days, respectively. In England in 1921 the legitimacy of a child born 331 days after the husband went to war was allowed. In the United States each case is decided on its own merits, since there is no law in this country or in England which defines the duration of gestation.

The problem is further complicated by the fact that there are no accurate criteria for ascertaining the degree of hypermaturity of newborn infants; even fully formed teeth are sometimes found in those born at term. It can only be said that the weight of the newborn child when evaluated against the size of the parents and parity of the mother can be highly suggestive.

CONFERENCES ON THERAPY

THESE are stenographic reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments and institutions. The questions and discussions involve participation by members of the staff of the college and hospital, students, and visitors. The next report will appear in the September 1 issue and will concern "Carbon Monoxide Poisoning."

The Doctor's Bag

DR. C. H. WHEELER: The topic for this morning is "The Doctor's Bag," a subject which I think will be self-explanatory, so I will ask Dr. Gold to start right off.

DR. HARRY GOLD: I thought it might be well to look into a few doctors' bags and see what there is in them, as a basis for the discussion this morning.

We examined the bags of 7 doctors, most of whom practice here in the center of New York. Here is what they contained in the way of medicines:

Dr. A.

Morphine sulfate	Hypodermic tablets
Codeine sulfate	Hypodermic tablets
Seconal	Capsules
Epinephrine	Ampules
Mercupurin	Ampules
Pituitrin	Ampules
Pitressin	Ampules
Amyl nitrite	Pearls
Ergone	Ampules
Coramine	Ampules
Camphor in oil	Ampules
Calglucon	Ampules
Trasentin	Ampules

Dr. B.

Morphine and atropine	Tablets
Pantopon	Tablets
Hyoscine HBr	Tablets
Nembutal	Capsules
Epinephrine	Ampules
Adrenalin in oil	Ampules
Coramine	Ampule
Digifolin	Ampules
Esidrone	Ampules
Nitroglycerine	Tablets
Prostigmine	Ampules
Gynergen	Ampules

Dr. C.

Morphine	Hypodermic tablets
Nembutal	Capsules
Amytal	Capsules
Coramine	Ampules
Digifortis	Ampules
Adrenalin	Ampules
Esidrone	Ampules
Salyrgan-theophylline	Ampules
Mercupurin	Ampules
Pituitrin	Ampules

Dr. D.

Morphine and atropine	Ampules
Dilaudid	Hypodermic tablets
Codeine	Hypodermic tablets
Hyoscine HBr	Hypodermic tablets
Nembutal	Capsules
Amytal	Tablets, gr. 1½
Amytal	Tablets, gr. ¾
Sodium amytal	Capsules, gr. 1½
Sodium amytal	Capsules, gr. 3
Seconal	Capsules
Atropine sulfate	Hypodermic tablets
Adrenalin	Ampules
Gynergen	Ampules
Ephedrine and amytal	Capsules
Coramine	Ampules
Caffeine-sodium benzoate	Ampules
Betaxin	Ampules
Thiamine and amytal	Ampules
Amyl nitrite	Pearls
Allonal	Tablet
Esidrone	Ampules

Dr. E.

Morphine sulfate	Vials 3%
Pentobarbital	Capsules
Epinephrine	Ampules
Mercupurin	Ampules
Digitaline Nativelle	Tablets

Dr. F.

Morphine sulfate	Hypodermic tablets
Adrenalin	Ampules
Alcohol	
Tincture merthiolate	

Dr. G.

Morphine and atropine	Hypodermic tablets
Morphine sulfate	Hypodermic tablets
Codeine sulfate	Hypodermic tablets
K-Y jelly	
Adrenalin	Ampules
Metaphen	
Alcohol	

The contents vary a good deal. One has only 4 items and another as many as 21.

Every one of these bags seems to be very well supplied with medicines to help the patient forget his troubles. They all have some narcotic, like morphine or codeine, or both, or dilaudid. Most of them have some form of sedative, and every bag has a dose of adrenalin.

If one examines the lists carefully, one will see

that only 3 of the 7 doctors are prepared to meet the emergency of an attack of acute heart failure with any of the drugs in their bags. If Dr. F. were called in the middle of the night to see a patient with acute pulmonary edema or acute left heart failure, he would be in a bad way—that is, from the standpoint of the extent to which a medicine can help. Dr. B. has a digitalis preparation, but only one ampule, a cat unit of digifolin for hypodermic injection. That would not help him very much. Dr. D.'s bag has 21 items. It is the most heavily stocked of the bags we examined, but, even so, he also is unprepared to treat an attack of acute heart failure or pulmonary edema, an attack of diabetic coma, or of insulin shock, a convulsion, or a case of acute drug poisoning. Let us suppose that the patient has just swallowed a dose of bichloride of mercury, and every minute counts. Is there anything there to help empty the stomach?

One cannot be dogmatic about what the contents of the doctor's bag should be. It depends on so many factors. A consultant should need very little in his bag, although, if one judges from the foregoing lists, the consultant might do well to carry more. The person who practices in the rural district, in which it is very difficult to find a pharmacy open at night or even in the daytime, needs a miniature pharmacy in his bag. That might not apply to certain sections of Manhattan.

Just before the session this morning I had occasion to see another bag, belonging to one who has put a good deal of thought and planning into it. These were the chief items: tablets of morphine, atropine, codeine, nitroglycerine, quinidine, digitalis leaf, phenobarbital, nembutal, aspirin, veracolate (a laxative), and sulfadiazine. There were urotropin tablets as a source of flame for sterilizing the hypodermic needle and syringe. There were ampules of sodium phenobarbital, adrenalin, adrenalin in oil, caffeine sodium benzoate, coramine, procaine solution, sterile distilled water, morphine solution, aminophylline, and mercupurin. This is by long odds the best equipped bag of the lot, yet an attack of acute heart failure in which a half hour or an hour might be decisive would still prove embarrassing. It contains no parenteral digitalis material. The patient in acute cardiac failure may be in coma or may be vomiting so that oral digitalis is out of the question. Nor does this bag provide a ready means for emptying the stomach if the patient has accidentally swallowed a poison in which minutes count. It is also unprepared for meeting the case of diabetic coma or insulin shock.

One might argue that the fact that doctors do not carry these items indicates they they probably do not encounter these conditions in general practice often enough or that they have means of securing them with dispatch when the emergency arises. Perhaps, however, we ought to consider the subject of the doctor's bag more broadly, from the standpoint of being prepared, in so far as it is possible, to meet practically all emergency situations in which a drug might help.

I have drawn up a list, which I am quite sure is not complete, but which I think comes fairly close to meeting every emergency condition in which a drug may be very helpful or even decisive. The order in which I list them is not the order of their importance.

1. Hypodermic tablets of apomorphine hydrochloride, $^1/_{10}$ grain. With these the stomach may be emptied very quickly and more certainly than by almost any other means. Mechanical stimulation of the pharynx is sometimes effective, but a great many patients will merely gag and not vomit.

2. Syrup of ipecac is a very useful agent to have in a bag. It can serve two major functions and perhaps some minor ones. It is about as effective an agent as we have to relieve a paroxysm of auricular tachycardia, and if there should be no apomorphine available, it could very well take its place as an emetic in a dose of 3 or 4 teaspoonfuls. Smaller doses would not insure rapid vomiting.

3. Morphine sulfate. Almost everyone has that. Hypodermic tablets of $^1/_4$ grain or a sterile solution of morphine in a vial are the most suitable forms. Tablets of codeine are useful, although not essential.

4. Digitaline Nativelle, 0.2 mg. tablets. If the patient is in advanced heart failure, give him 6 of these at one time, providing he has had little or no digitalis recently. It will digitalize safely in a few hours.

5. Ouabain, 2 cc. ampules containing 0.5 mg. of ouabain each, ought to be in every bag for the emergency in which hours may be decisive or the patient is vomiting and oral digitalization is not feasible.

6. Tablets of phenobarbital, $^1/_2$ grain, as a sedative.

7. Capsules of pentobarbital sodium, $1^1/_2$ grains. If one gives a fairly large dose of pentobarbital sodium, 3 grains, one is fairly sure that the patient will fall asleep, with little likelihood of marked depression the following day.

8. Phenobarbital sodium. It comes in ampules in the form of a powder. The 130 mg. ampule is the most useful size. It is dissolved in water and injected subcutaneously.

9. Ethyl chloride in a spray tube. This may be used as a volatile anesthetic to control a convulsion. It may also be used as a local anesthetic to incise a boil. It is a great help to have ethyl chloride in the bag for the case in which the

patient may have had the boil several days but calls you at 2:00 A.M. because the pain has increased beyond the limits of endurance.

10. An ampule of 50 per cent glucose, 50 cc., would help to meet the emergency of an insulin shock.

11. Ampules of mecholyl, 25 mg., for the attack of paroxysmal tachycardia. Give this dose subcutaneously when other less risky measures have failed. It rarely fails to terminate an attack promptly.

12. Hypodermic tablets of atropine sulfate, 1/150 grain, are needed in connection with the mecholyl. One should avoid injecting a dose of mecholyl unless a dose of atropine is at hand in another syringe.

13. Tablets of quinidine sulfate, 5 grains. If a patient develops an attack of auricular fibrillation giving rise to a severe reaction with cardiac pain and cold and clammy skin, he presents an emergency case. A dose of 15 grains every two hours will terminate the attack with dramatic relief.

14. Ampules of quinine dihydrochloride. In case the disorder of rhythm is more serious, such as ventricular tachycardia following an acute coronary thrombosis and the ventricular rate is 180 a minute, oral medication may not suffice. Quinidine is not available in solution for intravenous injection. The soluble form of quinidine does not keep. We use quinine dihydrochloride, a 20 cc. ampule, which contains 32 mg. of quinine dihydrochloride per cc.

15. Ampules of mercupurin, 2 cc., or some other organic mercurial diuretic. Every bag ought to have it to meet the condition of cardiac asthma or acute pulmonary edema. It does not act very quickly but after one has applied other measures one obtains more rapid recovery and insures against a recurrence by a prompt injection of a dose of mercupurin.

16. Ampules of theophylline ethylenediamine, about 3½ grains in 10 cc. It is helpful in the case of status asthmaticus. In the typical case presenting an emergency, the trouble starts early in the evening. The patient has been taking epinephrine injections, but now he does not seem to be responding, and two or three hours later the sense of suffocation becomes extreme. An intravenous injection of about 3½ grains sometimes provides relief. There are other emergency uses for this ampule.

17. Ampules of epinephrine, 1:1,000 solution, 1 cc.

18. Ampules of ergotamine tartrate, 1:1,000 solution, 0.5 mg. per cc. This helps to meet the occasional attack of severe migraine. It may be given intramuscularly but is more effective if given intravenously.

19. Ampules of solution of posterior pituitary, 1 cc. If one has any amount of obstetric practice, he might want to have that readily available.

20. Vial of insulin. This is useful for the emergency of acute diabetic coma.

21. Hypodermic tablets of nitroglycerine, 1/150 grain. Ordinary tablet triturates are often so hard that they remain too long under the tongue without dissolving, whereas the hypodermic tablet disintegrates almost immediately. It relieves the attack of coronary insufficiency.

22. Pearl of amyl nitrite. This might be used for some of the more severe attacks of coronary insufficiency, since its action is almost instantaneous.

23. Alcohol, approximately 70 per cent solution.

24. Sulfanilamide powder. Sterile packets are available to dust into a wound. Of course, it must be used with caution.

25. Tablets of sulfadiazine, 7½ grains.

26. Tablets of aspirin, 5 grains.

27. Solution of ephedrine sulfate, 1 per cent, for relieving severe head symptoms resulting from acute sinusitis or nasal congestion. Any of the substitutes belonging to this class of preparation will do.

28. Solution of picrotoxin, 0.3 per cent. A 20 cc. vial is available. It contains 3 mg. per cc. If one comes upon a case of barbiturate poisoning—an attempt at suicide with one of the hypnotics of the barbiturate group, with the respiration 3 or 4 a minute and signs of collapse—the injection of 10 mg. intravenously every twenty minutes until signs of hyperexcitability occur may add weight to the possibility of recovery.

29. Solution of pontocaine, 1 per cent. This is a useful local anesthetic for topical application. One or two drops into the conjunctiva relieves a painful conjunctivitis and makes it easier to remove a foreign body from the eye.

30. Ampules of calcium gluconate. A 10 cc. ampule of a 10 per cent solution of calcium gluconate is available. I am not sure whether that ought to be carried about. But there are few agents that will act as effectively against an attack of lead colic. If one is engaged in practice in which lead colic is likely to be encountered, perhaps that person should have it.

In listing the chemical agents that should be found in the doctor's bag I have mentioned a use or two to which they might be put. These are merely suggestive. There are other conditions in which some of them may prove helpful in tiding over an emergency.

I want to mention just one mechanical device which ought to be carried, I think, in every bag because the cases for which it is useful are com-

that only 3 of the 7 doctors are prepared to meet the emergency of an attack of acute heart failure with any of the drugs in their bags. If Dr. F. were called in the middle of the night to see a patient with acute pulmonary edema or acute left heart failure, he would be in a bad way—that is, from the standpoint of the extent to which a medicine can help. Dr. B. has a digitalis preparation, but only one ampule, a cat unit of digifolin for hypodermic injection. That would not help him very much. Dr. D.'s bag has 21 items. It is the most heavily stocked of the bags we examined, but, even so, he also is unprepared to treat an attack of acute heart failure or pulmonary edema, an attack of diabetic coma, or of insulin shock, a convulsion, or a case of acute drug poisoning. Let us suppose that the patient has just swallowed a dose of bichloride of mercury, and every minute counts. Is there anything there to help empty the stomach?

One cannot be dogmatic about what the contents of the doctor's bag should be. It depends on so many factors. A consultant should need very little in his bag, although, if one judges from the foregoing lists, the consultant might do well to carry more. The person who practices in the rural district, in which it is very difficult to find a pharmacy open at night or even in the daytime, needs a miniature pharmacy in his bag. That might not apply to certain sections of Manhattan.

Just before the session this morning I had occasion to see another bag, belonging to one who has put a good deal of thought and planning into it. These were the chief items: tablets of morphine, atropine, codeine, nitroglycerine, quinidine, digitalis leaf, phenobarbital, nembutal, aspirin, veracolate (a laxative), and sulfadiazine. There were urotropin tablets as a source of flame for sterilizing the hypodermic needle and syringe. There were ampules of sodium phenobarbital, adrenalin, adrenalin in oil, caffeine sodium benzoate, coramine, procaine solution, sterile distilled water, morphine solution, aminophylline, and mercupurin. This is by long odds the best equipped bag of the lot, yet an attack of acute heart failure in which a half hour or an hour might be decisive would still prove embarrassing. It contains no parenteral digitalis material. The patient in acute cardiac failure may be in coma or may be vomiting so that oral digitalis is out of the question. Nor does this bag provide a ready means for emptying the stomach if the patient has accidentally swallowed a poison in which minutes count. It is also unprepared for meeting the case of diabetic coma or insulin shock.

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mon, and often critical—namely, four pieces of rubber tubing which can be used as tourniquets for the case of acute pulmonary edema due to left heart failure. The application of these tourniquets to obstruct the return flow of blood to the arms and legs is sometimes a decisive measure in a desperate case.

DR. WHEELER: Dr. Guion, will you continue please?

DR. CONNIE M. GUION: Dr. Gold has covered the entire list of drugs needed in the doctor's bag and the indications for their use. I shall, therefore, lay more stress on the mechanical outfit in my bag. It includes this stethoscope with both a bell and a Bowles chest piece. This latter is very convenient for the examination of the lungs when the patient is supine and can be moved only with difficulty.

There is the sphygmomanometer, a light with an auroscope and ophthalmoscope, and two thermometers in glass containers filled with 75 per cent alcohol to keep them sterile. It is well to carry two thermometers in case you see two patients in one house or wish to leave one with a patient.

There are two sterile syringes equipped with nonrust No. 27 gage, 3/4 inch needles in sterile containers. One is graduated in hundredths for the administration of agents in small dosages. There is an extra supply of needles of various bores and lengths for intravenous, intramuscular, or intraspinal use.

Two sets of equipment for making blood counts are necessary during the winter season when there are so many acute infections and so much sulfonamide therapy is being used. They contain extra slides for making any necessary smears from the nose and throat.

There is a supply of wooden applicators and sterile tongue depressors in paper cases. There are special forceps for introducing Dowling packs into the nose. This celluloid tube contains cotton, some of which is in long fibers for the Dowling pack. This small box contains a number of small and a few large Band-Aids. These Hagedorn needles are very convenient for incising small infections, removing splinters, etc.

My bag contains practically all the important drugs mentioned by Dr. Gold, with some modification and, perhaps, duplication: morphine, codeine, dilaudid, hyoscine hydrobromide, nitroglycerine, atropine, apomorphine, nembutal, seconal, phenobarbital, phenobarbital sodium, delvinal sodium, epinephrine, caffeine sodium benzoate, digitalis, ouabain, quinidine, coramine, a cathartic, aminophylline, pitressin, gynergen, mercupurin, 75 per cent solution of alcohol. I carry several vials of morphine and codeine, inasmuch as I often leave one with a patient. I find it helpful to have 3 bottles of fluid for nasal instillation: one is a 10 per cent solution of argyrol, one a 0.5 per cent solution of ephedrine in saline, and one an oily preparation containing menthol and eucalyptol. I carry three different strengths of adrenalin: a solution of 1:1,000, a solution of 1:2,600, and adrenalin in oil, 1:500. A dose of 0.3 mg. for an asthmatic can be measured more accurately in the more dilute solution of 1:2,600. I carry aminophylline in two forms: one is 0.48 Gm. in 2 cc. for intramuscular injection, and the other a more dilute solution in 10 cc. for intravenous use. I see a number of women who have profuse and prolonged menstrual flow to whom I give testosterone. The one I have at the present time is Oretone, containing 25 mg. per cc. I also carry some ampules of sterile water, as there are times when sterile water is not readily available.

Another thing which I think is important is that you have in your bag a book which lists the things you may need for prescriptions. I always carry a card of metric equivalents. Although I know them perfectly well, they do not roll off my tongue as easily as grains do, and I cannot talk in grams to patients whom I take care of on the outside.

There is a fountain pen and pad for prescriptions, and a few formulas of prescriptions which I use but do not remember. I also have a list of suggestions for diets with the caloric equivalents. I find it very helpful to sit down with the patient who has no appetite and run over the names of a few appetizing foods.

On the other side of the book I keep the record of the patients whom I see each day so that at the end of the week the secretary or I can sit down and summarize the treatment which the patients have received during the week that has passed.

This is a complete list of the contents of my bag.

DR. WHEELER: Dr. Anderson, would you tell us how a pediatrician's bag differs, if it does, from that of a practitioner who takes care of adults?

DR. A. F. ANDERSON: I did not bring my bag. The pediatrician seldom encounters the acute cardiac failure and coronary thrombosis that are so common to physicians who treat adults. We do, however, often encounter some acute situations and for that reason we usually carry adrenalin, not only 1:1,000 but also 1:100, which we can use in an atomizer in case of severe urticaria or other so-called allergic conditions. We also carry some oral stimulant. I carry coramine, and, of late, since I got caught in a rather tight position a year ago, some aminophylline for intravenous use. We see a great deal of asth-

matic bronchitis, sometimes of a very severe type, and the only thing that seems to relieve some of these patients is aminophylline, a dose of 5 cc. repeated in an hour if necessary. We also carry codeine in some form, usually 1/4 grain hypodermic tablets, which can be given, of course, by mouth if necessary but also by injection when the indication is present.

We also carry some sulfathiazole because so many times we encounter—as, for example, at 4:00 A.M. today—a child with a severe acute laryngitis, so-called spasmodic croup, with great difficulty in breathing which was not relieved by the usual procedures of steam, etc. Even before I made the blood count in that case I gave him some sulfathiazole by mouth.

Ipecac, which you mentioned, Dr. Gold, for the so-called croup, is important. A pediatrician cannot be without the syrup of ipecac. It is the best emetic that we have and is usually given in doses of 1/4 to 1/2 teaspoonful, depending on the age of the child. If a quarter of a teaspoonful does not work, then in half an hour repeat that dose in order to induce vomiting, and there will be relief of the laryngeal spasm.

We encounter a great deal of otitis media, much more than one does in adult patients, and I always carry ethyl chloride and a small open mask. If you are caught in the middle of the night, and the otologist, if you are fortunate enough to get one, does not have the ethyl chloride, you have it. We are obliged to open ears ourselves quite frequently. Fortunately we have not lost the art entirely. So in addition to the array which closely resembles Dr. Guion's we carry, and perhaps you do, myringotomy knives, and also a small case with curettes and cotton carriers, and whatever is necessary for the proper care of the ear.

I would not be without the blood counting apparatus. It is even more important for children than for adults if the sulfonamides are to be used.

I carry merthiolate and alcohol, and, as a general rule, some silver nitrate sticks. One often sees small babies just home from the hospital, with granuloma of the umbilicus, or similar conditions, for which the silver nitrate is very useful.

Another condition which we encounter quite frequently at night is a convulsion. We have to be prepared to do lumbar punctures, and so we carry lumbar puncture needles of various sizes. For the small infant the needle is 2 inches long and of very small caliber.

In addition, we have, of course, the intravenous needles or syringes.

The thing that really differs, I think, from the adult practice, is the need for parenteral fluid which we are called upon to administer. No bag—even Dr. Guion's, which was packed so carefully—can possibly carry everything that one needs for parenteral fluid, so I have in the back of my car another old bag which has a 500 cc. vial of 10 per cent glucose and a 500 cc. flask of saline. Equipped with that, we are ready to take care of severe ketosis and repeated vomiting. I think that is the main difference.

DR. WHEELER: Dr. Barr, you have been taking notes. Were they all criticism? Have you some comment?

DR. DAVID P. BARR: I have learned a great deal this morning.

DR. WHEELER: We seem to slight the people in the back rows in favor of the front row, and I should like to know first if any of the students or house officers have any questions about what has been said here today.

DOCTOR: What simple reagents for chemical tests might be carried in the bag?

DR. WHEELER: Dr. Guion, would you like to answer that?

DR. GUION: I often have some crystals of sodium citrate in my bag which I can use in drawing blood for blood chemistry.

STUDENT: Anything for urine examination?

DR. GUION: I have a convenient little packet which I carry with me if I have a diabetic, with which I can do a urinary sugar very easily. I use urotropin for heating the tube. Eli Lilly supplies the unit. It does not cost very much. I do not carry any other reagents for urine examinations.

DR. GOLD: I should like to ask Dr. Guion whether she has ever encountered in her practice a case of diabetic coma or insulin shock? Is it necessary to be prepared for these?

DR. GUION: I have encountered insulin shock fairly often, but I have never seen a case in which I could not pour sugar in the patient's mouth. It is impossible to carry everything in your bag, and sugar is in every household. Diabetic coma I have seen once or twice during the past two years. I have usually immediately brought such patients to the hospital in my car. I found it more sensible than attempting treatment at home.

DR. WHEELER: Dr. Shorr, you had a question?

DR. EPHRAIM SHORR: The question I had has already been raised and answered by Dr. Guion. It was with respect to the little boxes which contain all that you need for sugar determination. It is too bad that the tests for acetone require strong acetic acid and strong ammonia, but it is possible to get small bottles that can be rendered leak proof, and a small amount of each of those with crystals of nitroprusside of

sodium will help a great deal in cases in which you cannot smell acetone on the breath.

DR. WHEELER: I should like to ask you a question, Dr. Anderson. Do pediatricians nowadays carry anything with which to do a tracheotomy?

DR. ANDERSON: Not as a rule. We usually rush the patient to the hospital.

DR. WHEELER: I have one thought, Dr. Gold, about one of the points you mentioned. I think that if a doctor carries a Levin tube and a large syringe in his bag, there are drugs he can do without. He can catheterize the patient if necessary. He can give comatose patients sugar by stomach even if they cannot swallow, and if a patient has taken poison he can wash out the stomach.

DOCTOR: None of the practitioners mentioned magnesium sulfate, which is very useful in convulsions. Why don't they carry that?

DR. WHEELER: Dr. Guion or Dr. Gold, do you have any comments?

DR. GOLD: It seems to me that most of the problems of convulsions are taken care of pretty well by a few whiffs of ethyl chloride. Ether would be safer, but if ethyl chloride is at hand it would suffice. The same can be accomplished by an intravenous injection of phenobarbital sodium, the ampule I spoke about, if the convulsions are not too severe.

I should like to ask Dr. Anderson this: There seems to be a fairly good representation of proprietary samples in the bags and one of them in a great many of these bags. I think I heard Dr. Guion say that she had it too—namely, coramine.

DR. GUION: Yes.

DR. GOLD: What is it there for?

DR. ANDERSON: I have had coramine in my bag for about the past five years, and I have not used it.

DR. GOLD: Is that true for you too, Dr. Guion?

DR. GUION: I seldom use it. All anesthetists carry it with them. If I go to an operation and the anesthetist happens to ask me for an ampule of coramine, I can produce it.

DR. WHEELER: I should like to ask you why you put ouabain into the ideal bag rather than an ampule of Digitaline Nativelle for intravenous use?

DR. GOLD: I can see no objection to having Digitaline Nativelle for intravenous use. I think that at the present time few physicians are accustomed to its use. I myself should prefer to have the same preparation for oral and for intravenous use. This is especially valuable since this material can be given in the same dose by the two modes of administration.

DR. MCKEEN CATTELL: Is the speed of action a consideration in connection with intravenous digitalis medication?

DR. GOLD: The difference in the speed is not often significant. Ouabain, however, does act more quickly.

DR. WHEELER: I have just one other comment to make in relation to a point that was not brought up this morning. I saw two patients in the hospital with tension pneumothorax whose lives were unquestionably saved by the fact that it was possible immediately to insert a large needle into the chest and take off some air. I have always carried a needle with a stopcock, and a syringe for that purpose, because that is one of the most dramatic things one can do. It is just like giving glucose to patients in insulin coma.

DR. JANET TRAVELL: I wanted to ask Dr. Gold if he would prefer the sulfanilamide powder to any other sulfonamide for instillation into wounds for local therapy? I think you mentioned sulfanilamide.

DR. GOLD: Sulfanilamide is recommended in the *Technical Manual* issued by the War Department in March, 1942. Sulfanilamide appears to cake less than some of the others.

DR. WHEELER: As one particularly interested in the sulfonamides, I would take strong exception to the average practitioner burdening himself with some sulfanilamide powder with the idea of putting it into wounds indiscriminately.

I think it is an uncertain procedure.

DR. CATTELL: It is done in the Army.

Summary

DR. GOLD: The discussion this morning indicates that the doctor's bag seems to be in need of more serious attention than it commonly receives if it is to enable the physician to meet the majority of emergencies for which he may hope to be prepared. Samples of proprietary medicines seem to have unduly heavy representation in many bags. We have drawn up a list of medicinal agents for the bag, for the most part essential in meeting the chief emergencies. Heavy bulk and large numbers do not describe this list. Discrimination in choice is the deciding factor.

Case Report

ACUTE DYSPNEA IN A CASE OF CARCINOMA OF THE STOMACH

AUGUSTUS B. CHIDESTER, M.D., F.A.C.S., Auburn, New York

MRS. P. W., age 34, was admitted to the Auburn City Hospital on December 16, 1942, complaining of a sudden, severe pain in the chest and upper abdomen. She also suffered from dyspnea, which had been increasing in severity since the onset of a cold six weeks before. She was in the sixth month of pregnancy.

She gave a past history of typhoid fever at the age of 10, with frequent colds and intermittent gas pockets in the right lower quadrant for the past three or four years. During the last two months she had had occasional spotting, together with pruritus. She had also suffered an attack of appendicitis two and one-half months before. Menstruation had begun when the patient was 15 years old, with a cycle of from twenty-eight to thirty days, seven days' duration, and moderate flow. She suffered slight pain on the first day. L. M. P. occurred on June 5, 1942, and the due date was March 23, 1943. A Wassermann test was negative.

Physical examination revealed an extremely sick woman, gasping for breath. Respiration ranged between 30 and 40 per minute. The heart and lungs were apparently normal. A mass about 6 cm. below the costal margins in the upper abdomen was observed. This mass was palpable in each upper quadrant. In the lower abdomen there was a six months' pregnancy, with the fetal heart audible about 3 cm. below the umbilicus. The cervix showed marked erosion, and Trichomonas vaginalis was present in the discharge. The glandular system was negative. An x-ray of the chest was normal.

The consultant's notes read: "Distended, tense abdomen; spasm in the upper right quadrant. No palpable masses. Unable to hear fetal heart. Question of abscess in the upper right flank."

The patient ran a normal temperature, but her blood pressure increased from 128/78 on December 16 to 140/80 on December 21. Nonprotein nitrogen increased from 30, on December 17, to 40, on December 21. White blood cells increased from 22,900 to 29,700 over the same period of time. The urinalysis was as follows: specific gravity, 1.032; albumin, moderate; sugar, none. Microscopic examination revealed hyaline and granular casts and occasional white blood cells.

The most marked symptom in the patient was her extreme difficulty in respiration. The treatment was symptomatic. Her toxemia increased rapidly, and she died at 11:00 A.M. on December 22.

The diagnosis was (1) severe toxemia, (2) possible appendiceal or subdiaphragmatic abscess, with the appendiceal abscess being favored, and (3) malignancy of the liver.

Autopsy findings showed the liver to be tremendously enlarged and covered with pinkish nodules of various sizes. The stomach was demonstrated. On the greater curvature was a large contracted area, which on being palpated revealed a nodular mass that extended into the stomach.

Diagnosis

1. Carcinoma of the stomach with metastasis to the liver and the adjoining glands.
2. Six months' pregnancy.

120 Genesee Street
Auburn, New York

TOOTH DECAY VACCINE

A vaccine against tooth decay is being tested at the Army Medical Center in Washington, D.C. The vaccine is made from lactobaccilli, the kind of germs believed responsible for decay, Captain Ned Williams, formerly of Dayton, Ohio, explained at the center's dental laboratories.

Both living and dead germs and a combination of the two are being tried in the hope of building up resistance to the germs. After guinea pig tests showed that the vaccine was not irritating, 14 enlisted men, as well as Captain Williams, volunteered to serve as human guinea pigs for further tests of the vaccine. Results will not be known for some time.

Use of chrome cobalt alloy and a new material, methal-methacalat, as substitutes, respectively, for gold and for vulcanized rubber in making soldiers' false teeth, was announced by Major Robert M. Appleman, director of the central dental laboratory at the Army Dental School.

The new metal alloy does not tarnish in the mouth and is made to resist strain. It is used for the plates into which the false teeth are set. Some 30 to 40 a month are made at the Army Dental School. Since the Army dental standards have been revised to take in completely toothless men, the business of making plates and false teeth is booming. The dental school with a staff of 47 technicians made 2,150 plates in one month, most of them with the methal-methacalat base instead of vulcanite.

Besides supplying full and partial sets of false teeth, the Army supplies single teeth when necessary. All are supplied to order and specifications from the dental officers in the field. A stock of 70,000 individual teeth of different colors, shapes, and sizes is kept at the center. All the metal alloy plates for the Army in the eastern half of the United States and the Atlantic bases are made there, those for the western half of the country and the Pacific bases being made at the dental center at Fort Sam Houston. The more frequently used plates, with methal-methacalat base, however, and the teeth for them are supplied from the center in Washington for only the three eastern service commands.—*Science News Letter*

Case Report

Pneumonectomy for Bronchiectasis Associated with Complete Thoracoplasty for Mixed Empyema and Complicated by Pulmonary Tuberculosis

CHARLES W. LESTER, M.D., New York City

PNEUMONECTOMY for tuberculosis has been reported by numerous authors whose success, while dramatic in some instances, on the whole has been disappointing. Pneumonectomy for bronchiectasis with tuberculosis as a complication is sufficiently uncommon so that the following case report should be of interest, especially inasmuch as it reflects the change in the method of treatment of bronchiectasis during the past twenty years.

Case Report

The patient was a white woman, 22 years old, whose illness dated back to the third year of her life, when she had three attacks of pneumonia. This pneumonia initiated a chronic cough which remained with her during the following years. In 1924, at the age of 4, she had pertussis with exacerbation of the chronic cough.

In 1927, when she was 7 years old, her tonsils were removed because of repeated attacks of hemoptysis. After this she continued to raise as much as 2 ounces of blood a day for two or three weeks and was accordingly admitted to a hospital for study, under the suspicion of having pulmonary tuberculosis. No pulmonary tuberculosis could be demonstrated, however, and she was discharged and remained at home for the next three years, although during that time she continued to have cough, sputum, and hemoptysis.

In 1930 she was admitted to a tuberculosis sanatorium because of hemoptysis and was treated as a tuberculous patient for twenty-nine months, although there was never any positive evidence of tuberculosis by x-ray, sputum examination, or any other of the tests which were employed.

She was discharged from this hospital and returned to her home, but in February, 1934, ten months later, she was admitted to a third hospital because of the continued hemoptysis. X-ray and sputum examinations were negative for tuberculosis, and for the first time a diagnosis of bronchiectasis of the left lower lobe was made. Left pneumothorax was instituted, and she was discharged in June, 1934, to continue her refills as an outpatient.

In February, 1936, she was readmitted to the same hospital because of considerable loss of weight and repeated hemoptysis. At this time x-ray examination indicated a tuberculous lesion in her right lung and one positive specimen of sputum was obtained out of twenty-one examinations. Right pneumothorax was instituted but, because it was ineffectual, was abandoned in three months. Bed rest was maintained until July, 1936, when she was discharged to her home. One month later she was readmitted again because of hemoptysis, but again all sputum examinations were negative for tuberculosis and she was discharged in September, 1936. During the last admission the pneumothorax on the left side was abandoned, but the left lung did not re-expand.

The patient remained at home until August, 1938, when an attack of fever and cough was diagnosed as right-sided pneumonia and she was readmitted to the same hospital. The pneumonia cleared up, but in October, 1938, gastric washings were positive for tuberculosis, and in November, 1938, sputum was positive for tuberculosis on two occasions. Bronchoscopy at this time revealed nothing of importance but was followed by a pulmonary hemorrhage. Fluid was then demonstrated in the left side of her chest, where the lung had failed to re-expand. This condition was treated by aspiration on six different occasions, bloody fluid being obtained each time. On one occasion this was positive for tuberculosis. In September, 1939, a bronchopleural fistula developed on the left side, and the patient raised copious quantities of foul sputum. She was toxic and febrile, and it was necessary to perform a thoracotomy for drainage. The empyema continued to drain, and between March and June, 1940, a complete, eleven-rib thoracoplasty was done in five stages. The thoracotomy tube was removed in August, 1940, and the wound healed.

She was then sent to the New York Municipal Sanatorium at Otisville for the continuation of her treatment. At this time no evidence of active infection was found in her right lung. Her left lung was collapsed under an eleven-rib thoracoplasty, and repeated examinations of her sputum and gastric washings failed to reveal tuberculosis by smear or culture. However, she continued to raise about 100 cc. of bloody sputum a day and on numerous occasions had frank hemorrhage.

In February, 1941, she was transferred to the Chest Service at Bellevue Hospital, New York City. She was bronchoscoped, and in her left lower lobe bronchus granulation tissue was found which did not have the appearance of being tuberculous. Treatment by silver nitrate through the bronchoscope resulted in the healing of this lesion. X-ray examinations, sputum examinations, by culture and smear, gastric washings, and all other tests to demonstrate tuberculosis were negative. Apparently, her tuberculosis was well controlled. Lipiodol injection in the left lung showed puddling indicative of bronchiectasis, but a bronchogram of the right lung was normal. This, together with the bronchoscopic examination, showed that her symptoms were all coming from her collapsed left lung and that the only hope of relieving her from a life of chronic invalidism was removal of the left lung. The hazards of the operation were explained to her, and she was willing to take the risk.

Accordingly on July 15, 1941, left intrapleural pneumonectomy was performed. The thoracoplasty scar was reopened, and because of the regenerated ribs, there was considerable difficulty in entering the chest. The initial opening was made well posterior in order to avoid the pericardium. This proved to be a wise move because entrance to the chest was demonstrated only when lung tissue was incised. By sharp dissection, the dense adhesions were freed and the lung mobilized except for one spot on the diaphragm, one area on the peri-

cardium, and one on the mediastinal pleura where it did not seem possible to liberate the lung without damage to these structures. These attachments were clamped, cut, and ligated, thus mobilizing the lung. A snare was placed about the hilum and the lung was removed distal to the snare. The stump was sutured, further secured by a ligature of heavy silk, and the pleural cavity packed. Since the condition of the patient was decidedly precarious at this time, the chest wound was hastily closed and the patient returned to bed. One liter of 5 per cent glucose and saline and 500 cc. of blood were administered by vein during the operation.

The patient rallied from the operation. Removal of the packing was started on the third day and completed on the sixth. Nausea and vomiting, which had troubled her after the operation, ceased when the packing was removed. A tube was inserted after removal of the packing but bronchial fistula did not develop, and the wound was allowed to close. The pathologic diagnosis was bronchiectasis. The examination failed to show tuberculosis.

The patient continued to have a cough, raising 20 or 30 cc. of frothy sputum, like saliva, every day. Bronchoscopic examination showed that the bronchus was well closed, and a bronchogram indicated that it was rather long, amputation having been made at the division of the stem bronchus into upper and lower lobe bronchi. The sputum apparently comes from this blind pocket. There is a moderate amount of scoliosis as a result of the thoracoplasty. Pulmonary functional tests show that the vital capacity is only about half that of a normal individual, as would be expected, but they also show that it is a little more than it was before pneumonectomy. The oxygen saturation of the arterial blood was normal—higher than it was before pneumonectomy—and the oxygen removal from the inspired air was greater after the pneumonectomy than before.

The patient was discharged from the hospital in September, 1941. After a period of two months' convalescent care she obtained a position in a secretarial capacity, where she now (March, 1943) works eight hours a day. She feels well and is gaining weight, although she still raises 20 to 30 cc. of frothy sputum daily.

This case demonstrates the fact that hemoptysis may result from something other than pulmonary tuberculosis and that artificial pneumothorax is not the treatment for bronchiectasis. Both of these facts are well understood now, but at the time treatment was begun on this patient our knowledge was not so complete as it is today. It is also interesting to note that the onset of this patient's tuberculosis occurred two years after her discharge from the tuberculosis sanatorium.

SALT WATER FOR SHOCK

A drink of salt water, of just the right strength, may become the future first aid treatment for shock in extensive burns.

Experiments at the National Institute of Health by Dr. Sanford M. Rosenthal, principal pharmacologist of the U.S. Public Health Service, point that way, although so far no human trials of the method have been made.

Survival rate for the first two days among burned mice given about one-fourth of a teaspoonful of the salt drink was about twice as high as among the animals not given this drink. When the animals were given two salt drinks, one and four hours after the burn, only about 13 out of 100 died the first day and 17 out of 100 on the second, as compared with about 93 out of 100 that died among untreated controls.

Dr. Rosenthal compared the salt drink treatment for shock from burns with other standard methods of treating shock. No benefit was observed, he reports, from epinephrine (adrenalin), posterior pituitary gland extract, adrenal cortical extract, or a synthetic adrenal cortical hormone preparation.

Human blood serum showed little effect when injected into the veins of the mice. Mouse blood serum was more effective but not so good as the salt drink.

Whether a salt drink can replace blood serum or blood plasma as lifesaving treatment for shock in human victims of burns cannot be told until more experiments have been made. The salt drink treatment is based on a different principle from that of replacing lost fluids as by plasma or blood transfusions, Dr. Rosenthal explained.

In mice, he finds, the acute mortality—that is, death—occurring within a day or two after an extensive burn, is closely related to a disturbance of the balance of sodium and potassium in the body as well as to the escape of fluids from the blood stream.

The upset in the sodium-potassium balance seems the most important, he reports, and may be the cause of the concentration of the blood and other effects attributed to the loss of fluids in the burned areas. Doses of potassium speeded death in the burned mice, and when this was given with sodium chloride, it antagonized the effects of the salt drink.

The strength of the salt drink, he explains, has to be such as not to upset the fluid balance of the body, and should have about the same osmotic pressure as that of the blood.

Since it is the sodium of the salt that is effective, other sodium salts, such as sodium bicarbonate, might be given if the salt drink proved too nauseating.

Salt tablets of the right dose with a glass of water might prove the most practical method for first aid use, if the new treatment develops into one useful for human burn victims.

Further studies on methods of saving those who succumb to burns after the first two days will be made, Dr. Rosenthal says. The studies have so far been limited to effects of treatment for shock, rather than for the burn itself, since in man from 60 per cent to 80 per cent of the deaths from extensive burns occur within the first few days as the result of shock.—*Science News Letter*

Honor Roll

Medical Society of the State of New York

Member Physicians in the Armed Forces

Supplementary List*

The following list is the ninth supplement to the Honor Roll published in the December 15, 1942, issue. Other supplements appeared in the January 1, January 15, February 15, March 1, March 15, April 15, June 1, and July 1 issues.—*Editor*

A

Aaron, A. H
40 North St, Buffalo, N Y.
Aaron, H
1235 Park Ave, N Y C
Alexander, R E
3410 Hughes St, Huntington, W.Va
Angello, A F
117 S 2 Ave Mt Vernon, N.Y

B

Baglivi, A W
203 Grand St N Y C
Bembenista, J K
366 Walden Ave Buffalo, N Y.
Berger, H (Lt, U S C G)
Inlet Inn Beaufort, N C
Berlowitz, H D
1446 President St, Brooklyn, N Y
Bernstein, N K
Camp Myles Standish, Taunton, Mass
Bloomberg, A E
5 E 53 St, N Y C
Blum, S D
306 W 92 St, N Y C
Bouton, S M, Jr
65 Berkeley St, Rochester, N Y
Boyd, J L
Glen Cove, N Y
Bronson, W M
1922 McGraw Ave, Bronx, N Y
Brown, E E
42 02 Layton St, Elmhurst, N Y
Brown, L. M
Northport, N.Y

C

Campbell, M F.
140 E 54 St, N Y C
Cancellieri R
3348 Wilson Ave, Bronx, N Y
Cataffo A A
549 E 234 St, Bronx, N Y
Chesanow, M
East Islip, N Y
Chlenoff, S
772 West End Ave, N Y C
Cinberg, B L
50 E 78 St, N Y C
Clark, B B (Maj)
Fort George G Meade, Md
Cohen H. H
698 West End Ave, N Y C
Coleman, L L
162 E 80 St, N Y C
Cook, N L (Lt)
Station Hosp, Chanute Field, Rantoul, Ill
Cooper, N (Maj)
Army & Navy Gen Hosp, Hot Springs, Ark

D

Dantes, D A
1165 Park Ave, N Y C
De Rago, C
458-46 St, Brooklyn, N Y
Diacovo, M (Capt)
A P O 255, c/o P M, Pine Camp, N Y
Dreyler, O
1671 Macombs Rd, Bronx, N Y
Dunne, J. J
71-2 St, Troy, N Y

E

Eisner, E E
103 E 86 St, N Y C
Ekelson, C I
Anniston, Ala
Elliott R H E, Jr
180 Ft Washington Ave, N Y C
Elliott, W P
New Berlin, N Y.

F

Feldberg, I
Veterans Administration, Hines, Ill
Ferrara J D
163 E 81 St, N Y C
Fields A
18 E 4 St, Jamestown N Y
Fleming J J
333 E 43 St, N Y C
Flowers H L
2430 University Ave, Bronx, N Y
Foit, N J
79 Delaware Rd, Kenmore, N Y
Follett, D W
21 Overhill Rd, Scarsdale, N Y
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G

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Goldmacher, I (Capt)
Station Hosp, Camp Davis N C
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200 W 20 St, N Y C
Gorlin P S
130 01 Lefferts Blvd, Ozone Park N Y
Gosis, M
114-40 131 St, South Ozone Park, N Y
Gossman, H P
327 E Sidney Ave, Mt Vernon, N Y
Gutman, E B
48 W. 85 St N Y C

H

Horn, M (Capt)
Carlisle Barracks, Pa
Horowitz, J (Lt)
A P O 254 c/o P M Los Angeles Calif

J

Joyner, A L (Maj)
Station Hosp, Camp Butner, N C

K

Kiss, S
Rome Ga
Klaer, H Jr (Capt)
Camp Forrest, Tenn
Knight, A P
Waverly, N Y
Kramin, P (Lt Com)
Bainbridge Md
Kraus, W M
4 W 43 St, N Y C

L

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8718 Ridge Blvd, Brooklyn N Y
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20 Plaza St, Brooklyn, N Y
Laquidara, V T
45 24 St, Troy, N Y
Lau, K C K
9 Oliver St, N Y C
Lintz, R M
975 Park Ave, N Y C
Littman L
2212 Ditmas Ave, Brooklyn, N Y
Lusk G C (Capt)
S P E, Seattle Wash

M

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Morris W A
91 Ashburton Ave, Yonkers, N Y

P

Pollack, M
30 95 34 St, Astoria, N Y

R

Read P M
34-24 87 St, Jackson Heights, N Y
Rie G A
1391 Madison Ave, N Y C
Roberts, E F
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Rothbart S
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* The name of Dr W T Kennedy, 930 Park Avenue, New York City, was published in the Honor Roll in the July 1 issue by mistake Dr Kennedy is not in the service —*Editor*

S

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Scheer, A. A.
435 W. 44 St., N.Y.C.
Smith, F. E., Jr. (Lt.)
Kent, Conn.
Solomon, N.
1975 Davidson Ave., Bronx, N.Y.
Spielholz, J. B.
506 Ft. Washington Ave., N.Y.C.
Steinberg, I.
230 Central Park W., N.Y.C.
Steingesser, E.
504 E. 5 St., N.Y.C.
Sutton, A. M.
San Marcos, Tex.

W

Weisman, J. C.
109-80 Rd., Kew Gardens, N.Y.
Wender, H. N. (Lt.)
Neptune Beach, Alameda, Calif.
Winter, L. (Maj.)
Camp Campbell, Ky.
Wood, E. H. (Capt.)
Boca Raton, Fla.

Z

Zahn, B. L.
184 St. Nicholas Ave., Brooklyn N.Y.
Zucker, A. (Lt.)
Camp Joseph T. Robinson, Ark.

RUSSIAN MILITARY MEDICINE

The popular concept in this country is that Russia is a backward nation. This idea is based on what Russia was many years ago, but it would surprise many here to know how modern the Russians are in their medical services, both in peacetime and in war. We shall not discuss the progress they have made in their peacetime handling of the sick and injured, but the recently released statistics of how well the Russians are doing in caring for their wounded in battle are most encouraging.

It is reported that 70 per cent of the wounded are back in combat services. Only 1.5 per cent of the Russian wounded have died. This is but a small fraction of their mortality of the wounded in the last World War, and also considerably better than the German or French figures of the last World War.

It may seem that the Russians have accomplished a miracle but they laid the groundwork for their present-day results some twenty years ago. Then they had only 20,000 physicians. In 1940 there were 160,000 physicians in Russia, and they were graduating about 12,000 new physicians in a year.

Now they are graduating more than three times that number. In the invaded sections where some of their foremost medical colleges were situated, they moved their entire medical schools, including students, laboratory equipment, books and teachers, back into the Urals, hundreds of miles away, where they continued their training without much interruption.

One of the most helpful factors in the Russian setup is the so-called *Feldschers*. This is a group of about 400,000 men and women who are not graduate physicians but who have had considerably more practical training than our advanced first aid groups—training in practical nursing, care, and transportation of the wounded, and those who have worked in close cooperation with physicians. They have enabled the Russians to get in their wounded early and give them first aid and care which is so essential, for the mortality ratio always goes down in direct ratio to the speed with which the wounded receive their first treatment.

The Russians use the sulfa drugs as much as we do. They also make wide use of serums and transfusions.

We believe that the Russian technic is superior to our own in many ways. They have pioneered in this field and have invented many methods of preserving blood which have proved highly successful, and we would do well to take advantage of their technic.—*Medical Record*

ON CARE OF THE NAILS

Right or wrong, the appearance of the nails and hands is often considered as an index of one's character, so consequently care of the nails usually begins at birth, Herman Goodman, M.D., New York, declares in *Hygeia, The Health Magazine*, for May.

"In childhood," he explains, "the problem of nail care revolves about the habit of nail biting. The psychologist claims nail biting is more or less normal. Nearly all mothers discipline the baby who persists in sucking the nail, or the finger tips when the nails are worn down. In any event, a young boy or girl who has a nail-biting habit following the finger sucking of early childhood should have nail care. Some children are freed of the habit by acquiring pride in the appearance of their nails. This may be done by professional manicure, keeping the nail short without free or hangnail edges. . . . . Some people claim to have cured the nail-biting habit by the application of tart or bitter chemicals to the nail or finger extremities. This is not always effective: some children come to enjoy the bitterness or saltiness of the average safe chemical applied for this purpose.

"Nail care at home may be attempted as soon as the child appreciates what you are trying to do. Visits to a professional manicurist will usually do much more than you can."

The question as to at what age colored nails should be permitted, tolerated, or encouraged by parents cannot be arbitrarily answered, Dr. Goodman says, because of marked differences between chronologic age and social age, which depends on many other factors.

Dr. Goodman warns that the fact that various nail lacquers do not conform to any one type of formula or recipe should influence one against attempting to mix nail lacquer cosmetics from two manufacturers and to apply the mixture on the fingernails, and that the same admonition applies against mixing various products from the same manufacturer.

"It is impossible to nourish the nail by an application to its surface," he says. "The appearance of the surface of the nail may be altered by physical or chemical means. The result is always temporary, as the nail continues to grow. Malformations or distortions of the nail surface due to injury of the matrix of the nail can be removed or camouflaged by applications to the surface. . . . .

"The question has often been asked whether or not nails 'breathe.' This is usually a preliminary question to one regarding the effect of nail lacquers on such breathing. The nail does not breathe. . . . ."
—*A.M.A. News*

Medical News

Army Medical Administrative Officers Trained in Texas

ONE of the most rapidly growing officer corps in the Army is the Medical Administrative Corps, a nonmedical group which is combining its knowledge of supply, evacuation, personnel, and training methods with the specialized work of the professional men.

Noncommissioned men from all branches of the service are chosen by selecting boards and given special instruction at the Medical Administrative Officer Candidate School at Camp Barkeley, Texas. Some of the candidates come from such civilian fields as pharmacy, embalming and mortuary, chemistry, hospital administration, and premedical training.

At the Administrative school, the only one of its kind since Carlisle Barracks, Pennsylvania, was taken over completely by the medical field service, candidates are given intensive training in logistics, tactics, sanitation, administration, chemical warfare, and allied subjects, which will enable graduates to qualify for any job in the Medical Administrative Department.

A class of from 200 to 400 second lieutenants is graduated from the school every two weeks. Commandant of the school is Brig. Gen. Roy C. Heflebower, who is also commanding general of the Medical Replacement Center. His assistant is Col George E. Armstrong, Medical Corps, who has been assistant commandant since the school was founded.

Office of Civilian Defense Expands Rescue Service

WITH British experience demonstrating the importance of a lifesaving service trained in technics similar to those used in mine rescue work, James M. Landis, Director of Civilian Defense, has taken steps to strengthen our rescue service with the appointment of Simon H. Ash as Chief of the Rescue Section of the Medical Division of the Office of Civilian Defense.

Mr. Ash, who also serves as Chief Engineer, Metal and Nonmetal Section, Mineral Production Security Division, U.S. Bureau of Mines, will go to England soon to study rescue technics. On his return he will establish "pilot" schools in Pittsburgh and in the San Francisco Bay area for the training of rescue officers.

Under the present plan, when an incident occurs, the medical adjutant at the Control Center will dispatch an express party to the scene. The express party will include one ambulance, one mobile medical team, and, if trapped casualties are reported, one rescue team sent out by the Chief of Rescue Service. Coordination of the two services will make possible immediate clearance to hospitals of seriously injured casualties recovered from debris.

Annual Session on Physical Therapy

THE American Congress of Physical Therapy will hold its twenty-second annual scientific and clinical session September 8, 9, 10, and 11, inclusive, at the Palmer House, Chicago.

Rehabilitation is in the spotlight today, and physical therapy plays an important part in this work.

The annual instruction course will be held from 8:00 to 10:30 A.M., and from 1:00 to 2:00 P.M. during the days of September 8, 9, and 10, and will include a round-table discussion group from 9:00 to 10:30 A.M., Thursday, September 9. The scientific and clinical sessions will be given in the remaining portions of these days and evenings. A feature will be an hour demonstration showing technic, from 5:00 to 6:00 P.M. during the days of September 8, 9, and 10.

All of these sessions will be open to the members of the regular medical profession and their qualified aids.

For information concerning the instruction course and program of the convention proper, address the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

Emergency Medical Service in Industrial Plants

EVERY industrial plant medical department should prepare a "disaster operations plan" to provide adequate medical service in case of a plant catastrophe involving large numbers of casualties.

This is the advice given in the new bulletin, *Emergency Medical Service for Industrial Plants*, issued by the Medical Division of the Office of Civilian Defense.

The plan should provide for necessary first aid care at the site of the incident, for adequate ambulance service, and for hospitalization of the seriously injured.

Casualty stations must be set up, with arrangements made for alternative locations that may be used if those of first choice are destroyed.

Accurate records should be made for every person, injured or uninjured, who leaves the plant, and the place to which the injured have been taken should also be given. Casualties should be distributed among various hospitals in order to guarantee quick and efficient service.

County News

Broome County

Dr. Clarence E. Bolton, former federal meat inspector at Albany, was recently appointed chief health inspector of the City of Binghamton, to succeed the late John L. Costello.*

Cattaraugus County

At the annual dinner meeting and election of officers of the county society, held Thursday evening, June 10, in Hotel Dudley, Dr. J. A. Taggert, of Salamanca, succeeded Dr. Henry Allen, of Gowanda, as president of the organization.

Other officers elected were: Dr. M. G. Sheldon, of Olean, vice-president, to succeed Dr. Taggert; Dr. W. R. Ames, of Olean, secretary and treasurer, to succeed Dr. Leo E. Reimann, of Franklinville.

Dr. Herbert H. Bauckus, president-elect of the Medical Society of the State of New York, attended the meeting and addressed about 30 doctors on tentative plans of the State Department of Health to furnish obstetric care for soldiers' wives.*

Chautauqua County

Dr. and Mrs. William A. Randel, formerly of Mt. Vernon, have arrived in Jamestown, where Dr. Randel has opened an office to practice as a specialist in ear, nose, and throat work.

Before his move, Dr. Randel had practiced at Mt. Vernon for the past twenty-seven years and prior to that had practiced in New York City. He is a diplomate of the American Board of Otolaryngology, a fellow of the American College of Surgeons, a fellow of the American Medical Association, member of the Westchester County Medical Society, and former treasurer of the Mt. Vernon Medical Society. He was formerly connected with the Manhattan Eye and Ear Hospital and the New York Post-Graduate Medical School.*

* * *

Chautauqua County's quota of doctors for the armed forces has been filled, an announcement at the meeting of the county society on June 18 at the White Inn, Fredonia, showed.

The main speaker at the meeting was Dr. James C. Sullivan, professor of surgery at the University of Buffalo, who addressed the 35 doctors present on "Peptic Ulcer Surgery."*

Cortland County

In the thirteenth annual report of the Cortland County Health Department, Dr. William E. Mosher, Jr., commissioner, records a series of accomplishments in community health for the year ending December 31, 1942, despite shortages in personnel and other handicaps occasioned by the war.

The report gives first place in the list of achievements to an intensive diphtheria immunization drive which resulted in the protection of 753 preschool children, raising the Cortland city immunization rate from 29 per cent in 1941 to 47 per cent in 1942, and the rest of the county from 36 per cent to 45 per cent in 1942. This was more than twice the preschool immunizations completed in any single year since 1938.

Among other accomplishments were organization and utilization of volunteers in such work as making surveys, assisting at clinics, and preparing supplies; immediate hospitalization of all newly discovered active tuberculosis cases; establishment of an emergency public health nursing service; and inauguration of a dental program in connection with the preschool consultation service.—*Health News*

Dutchess County

The Dutchess County Health Association plans to improve its health program for the coming year by the addition to its staff of a full-time trained health educator who may place special emphasis in the nutrition field and aid toward the development of a permanent home bureau, according to the association's twenty-seventh annual report.

The association also aims to prepare, by expenditure of funds and general development, for a dental clinic.

The association's full-time year-round health education program in tuberculosis receives added stimulus at the time of the Christmas Seal sale and in April during the early diagnosis campaign. The association has endeavored to reach the school population through the Christmas Seal health programs and in the past year has given special attention to the distribution of materials to the factories by means of its bulletin board poster service as well as by payroll pamphlet distribution.

The association has acted for several years as substitute for a Women's Field Army in Dutchess County and has given the necessary contribution in funds to the New York State Cancer Committee. It has been copartner with the cancer committee of the county medical society in health education. Considerable literature has been distributed and articles have been written concerning cancer.

By means of the association's Children's Treatment Fund, considerable dental correction has been accomplished and this program and its facilities are still available. More recently, through participation with the Dental Committee of the Dutchess County Welfare Council, the association has given thought to Poughkeepsie's school dental program and the possibility of the establishment of an enlarged adult clinic at Vassar Hospital.*

Erie County

Steps to relieve the critical shortage of doctors in the Tonawandas were considered at a meeting on June 24 of the War Councils of Tonawanda and North Tonawanda in joint session with the Twin Cities Academy of Medicine.

As a result of military enlistments and recent deaths among physicians, the ratio now is only one doctor to 3,000 persons. The two cities have lost 17 doctors to the armed forces, and several elderly doctors are unable to maintain active schedules.

The War Council and the Academy discussed the advisability of three proposals: (1) discourage further enlistment of medical men in the Tonawandas; (2) attempt to have one or more doctors released from military duty and returned to private practice; and (3) bring new doctors into the cities if possible.

Similar attempts to relieve the shortage of physicians in Buffalo are being made by the county medical society through the development of a plan

* Asterisk indicates that item is from local newspaper.

that will help residents of Buffalo and Erie County to obtain medical attention.

Doctors in the city have been organized by wards and, outside the city, by towns. Patients will call the society between 9:00 A.M. and 5:00 P.M., or the Nurses' Registry between 5:00 P.M. and 9:00 A.M., and a doctor will be recommended. According to Dr. Harold F. R. Brown, president of the society and originator of the plan, the doctors have cooperated very well and have taken increasing numbers of patients in spite of heavy demands upon their time.

Jefferson County

The county society, at its regular monthly meeting on June 15, passed a resolution favoring a county health organization and recommending to the mayor, the city council, and board of supervisors that such a department be established.

The society also requested the appointment of the various officers necessary in the organization of a county health department: a county health commissioner; county deputy commissioners, probably 8 to 10; county health nurses, probably 16 to 18, at least one for each town in the county, all serving under a supervising nurse; county veterinarian and county sanitary engineer; and the establishment of a county laboratory.

The speaker at the meeting was Dr. Floyd S. Winslow, of Rochester, whose subject was "Interesting Medicolegal Cases."*

Kings County

Dr. Joseph Lo Presti, assistant surgeon, United States Public Health Service Reserve, and a member of the staff of Long Island College Hospital during the past two years, has been assigned to the National Society for the Prevention of Blindness to carry on a program in the field of industrial eye hygiene, it was announced recently by Mrs. Eleanor Brown Merrill, executive director of the society.*

Monroe County

Appointment of a 24-member medical advisory panel for the Monroe County Rationing Board to pass on applications for rationed commodities based on medical necessity has been announced by Joseph D. Patterson, district OPA manager, and Dr. D. C. Padelford, board chairman.

The panel is headed by Dr. G. Kirby Collier, as general chairman, and is divided into three groups of 8 physicians recommended by the Monroe County Medical Society, the Rochester Academy of Medicine, and the city and county war councils.

The groups and their personnel are as follows:

Group One: Dr. B. J. Duffy, chairman; Dr. H. B. Crawford, Dr. L. T. Waldo, Dr. S. R. Snow, Dr. P. W. Beaven, Dr. C. W. Warren, Dr. D. A. Haller, and Dr. C. S. Lakeman;

Group Two: Dr. A. D. Kaiser, chairman; Dr. H. H. Baker, Dr. J. J. Finigan, Dr. J. L. Van de Mark, Dr. H. I. Norton, Dr. E. H. Burnes, Dr. G. E. Sanders, and Dr. C. I. Maggio;

Group Three: Dr. C. B. F. Gibbs, chairman; Dr. J. P. Henry, Dr. E. G. Whipple, Dr. G. K. Collier, Dr. J. K. Quigley, Dr. David Wolin, Dr. L. C. Boynton, and Dr. F. S. Winslow.*

• • •

The 400th anniversary of Andreas Vesalius' disclosure of new theories in anatomy was marked at the Rochester Academy of Medicine on Wednesday, June 16.

Dr. Charles B. F. Gibbs, president of the academy, presided at the special meeting, and the principal speaker was Dr. Ernest Sigerist, professor and director of the Institute of the History of Medicine at Johns Hopkins University. His topic was "The Contributions of Vesalius to Medicine."

There was also a special exhibit of Vesalius material arranged by Dr. John R. Williams, of the Academy Museum. Members of the Women's Auxiliary of the Academy, headed by Mrs. Christopher G. Parnall, were hostesses at a buffet supper at 6:30 P.M. on the academy lawn preceding the meeting.*

New York County

Direction of all medical teaching in the New York Eye and Ear Infirmary was taken over by the School of Medicine of Columbia University on July 1, it was announced recently by Dr. Robert M. Youngs, president of the infirmary, and Dr. Willard C. Rappleye, dean of the Columbia school.

The directors of the infirmary, it was said, had decided that medical teaching controlled by the standards of a large university medical school could develop more effective training programs to cope with war casualties and expansion of research.*

• • •

Schuman's, 20 East 70th Street, has issued under the title "Rare Medical Books" its eighth catalogue of materials important in the history of medicine. A strong element in the present catalogue of nearly 500 titles is the group of 99 titles which are divided into works by Vesalius, works incorporating in part Vesalius's illustrations or writings, and general medical works of the Renaissance. The remainder of the catalogue comprises miscellaneous medical works of many periods. The publication of such a catalogue is an event for the medical collector.*

• • •

The number of syphilis cases reported to the New York Health Department in 1942 showed an increase of 10 per cent over 1941, according to an annual report of the Bureau of Social Hygiene, released recently by Health Commissioner Ernest L. Stebbins.

The number of all reported venereal disease cases increased from 40,311 in 1941 to 42,925 in 1942.

"Of particular significance was the increase in the reported cases of syphilis among boys and girls between 15 and 20 years of age," said Dr. Theodore Rosenthal, director of the Bureau of Social Hygiene, who prepared the report. "Primary and secondary syphilis in this group showed a rise of 37 per cent for the year 1942 as compared with the period 1939–1941."

It was pointed out that from the inception of The Selective Service Act, through December 31, 1942, the Department's diagnostic laboratory examined 893,281 specimens for syphilis and the percentage of registrants with positive serologic reactions was estimated to be 2.5 per cent. All registrants suspected of having a venereal infection were followed up for further examination.

"The widespread use of blood tests in selective service, premarital, and prenatal examinations has created a vast case-finding project for the study of

venereal diseases in the New York area," the report said.

Dr. Rosenthal reported that last year the Health Department tested a total of 640,230 selective service blood specimens, or nearly three times as many as in 1941. In addition, 176,105 premarital serologic tests for syphilis were recorded. As a result of these tests, there was a substantial increase in the number of "venereal disease suspects" examined, diagnosed, and treated. Following treatment many were able to enter the armed forces or to return to their normal occupations.*

• • •

With the issuing on June 24 of the *Directory of Tuberculosis Clinics*, published annually by the New York Tuberculosis and Health Association, Dr. J. Burns Amberson, Jr., president of the Association, announced that there are 42 tuberculosis clinics operating at the present time in the City of New York.

Compiled under the direction of Dr. H. McLeod Riggins, chairman of the Tuberculosis Committee of the New York Tuberculosis and Health Association and Medical Director of Triboro Hospital in Queens, the directory provides identifying information on the 26 officially designated district clinics and the 17 nondistrict clinics which serve the five boroughs of New York City. Of the 42 tuberculosis clinics, 19 are located in Manhattan, 6 in the Bronx, 8 in Brooklyn, 7 in Queens, and 2 in Richmond; 20 are under the supervision of the Department of Health; 11 are under the supervision of the Department of Hospitals; and 11 others are supervised by voluntary hospitals and agencies.

Diagnostic services are available at 35 clinics; pneumothorax treatments may be obtained in 17 clinics, 10 operated by the Department of Hospitals, 6 by voluntary institutions, and one by the Department of Health. There are 23 consultation clinics in the city, 19 of which are operated by the Department of Health and 3 by the Queensboro Tuberculosis and Health Association. Twenty clinics have evening sessions, and 8 conduct separate sessions for children. The Department of Health maintains a survey clinic, and Montefiore Hospital, a voluntary institution in the Bronx, has a tuberculosis-diabetic clinic.

The directory includes also maps showing the boundaries for the tuberculosis district clinics and lists the branch offices of the Department of Health and the District Health Centers, with identifying information.

• • •

Saul M. Small, M.D., has been appointed to the staff of the National Hospital for Speech Disorders as psychiatrist and assistant to the Medical Director. Dr. Small was formerly a resident psychiatrist at the Payne Whitney Psychiatric Clinic.

• • •

First Lieutenant Margaret Janeway was discharged from the Women's Army Auxiliary Corps to become a major in the Army Medical Corps—the first woman to become an Army doctor in the North African theater and the second in the entire United States Army.

Her transfer gratified a long-standing ambition. She had practiced extensively in New York City at the Lenox Hill and St. Luke's Hospitals. Major Janeway's grandfather, Colonel John H. Janeway, was an Army surgeon in the Civil War, and she always wanted to follow his career.

She became a contract surgeon assigned to the W.A.A.C. on October 21, 1942, later deciding to join the organization, and was sent abroad with the first W.A.A.C. company in North Africa six months ago. She then applied for a Medical Corps commission.

Major Janeway was born in Trenton, New Jersey, and received her education at Bryn Mawr, Columbia, and the College of Physicians and Surgeons in New York City.

• • •

The United Seamen's Service announced last week that it would broaden its entire medical program and establish new centers where seamen may convalesce after injuries or illness and where those unable to return to their old duties may be instructed in new work and given new interests.

A new occupational retraining center is to be set up in New York City for merchant seamen incapacitated for their old duties, and a suitable building for this purpose is now being sought, Douglas P. Falconer, national executive director of the service, said. He listed other objectives as follows:

To install proper medical chests and medical books on all merchant ships; to give courses and show movies on health topics to officers and men, to establish a uniform system of physical examination of seamen by shipping companies, to meet all seamen-survivors of war action on their arrival home and see that their medical needs are met, and to publish special books and pamphlets on health topics for seamen.*

• • •

Six deaths from heat prostration and increases in mortality from diseases common to old age—in which unusual heat might have been an important factor—raised the general death rate in New York City for one of the recent hot weeks to 11.9 per 1,000 population, Health Commissioner Ernest L. Stebbins reported. The death rate in the preceding week was 10.3.

So far this year deaths have averaged 11.5, compared with 10.2 at this time in 1942 and 10.7 in 1941. A somewhat higher death rate in wartime is to be expected among the civilian population, health officials pointed out, adding that the picture was distorted somewhat by removal of youths into the armed services—and therefore out of the reportable vital statistics except as part of the basic population.*

Niagara County

A physician pooling plan for night calls and emergencies was outlined by Dr. Richard H. Sherwood in an address to the Niagara Falls Rotary Club in the Hotel Niagara on June 14. Dr. Sherwood discussed the project from various angles, setting forth the advantages which would result from adoption of the plan.*

Oneida County

When the county society met on July 13, it discussed the action of the American Medical Association, taken June 9 in Chicago, to create a new

council to plan for better medical care throughout the nation.*

• • •

Dr. F. M. Miller, Utica deputy medical officer for Civilian Defense, called a meeting for all members of the Emergency Medical Corps, Civilian Defense, on Wednesday, June 16.

The program included a sound movie, "Fighters in White." There was discussion of emergency medical service by Col. A. J. Canning, director of Rhoads Hospital. Colonel Canning was in charge of a service hospital at Pearl Harbor, December 7, 1941.

A round-table discussion by the adjutants followed.

Information on the subject of emergency, medical technic and chemical warfare was given. Chemical Warfare Director G. W. Pirk, Dr. Fred Owens, and Dr. F. M. Miller, Jr., took part in the discussion.*

• • •

The newest addition to the staff of the Army Air Forces Technical Training Command in charge of more than 350 premeteorologic trainees at Hamilton College is a full-time Army physician, Lt. Conrad E. Rosdahl.

Establishment of a dispensary in the Hamilton College gymnasium will be supplemented by use of the Rome Air Depot Hospital, Lieutenant Rosdahl indicated.

A graduate of Cornell University, Lieutenant Rosdahl received his medical degree from the College of Physicians and Surgeons at Columbia University and interned for a year at Sacred Heart Hospital, Spokane, Washington, before entering the Army.*

Ontario County

The regular quarterly meeting of the county society was held at the Geneva Country Club, Tuesday, July 13.

The three addresses on the scientific program, which was furnished by the staff of the U.S. Naval Hospital, Sampson, New York, included: "Experiences with the Medical Department on Guadalcanal," by Chief Pharmacist J. Scripp, Jr., USN; "Experiences on a Hospital Ship in Pearl Harbor," by Lieut.-Comdr. J. D. Norris (MC), USNR; "The Importance of the Bacteremic Phase of Cerebrospinal Fever and Its Relation to the Waterhouse-Friederickson Syndrome," by Lieut.-Comdr. F. R. Bailey (MC), USNR.

Orange County

Dr. Arnold S. Banks has returned to Newburgh after spending two years in Kings County Hospital, Brooklyn, where he completed a surgical internship and was resident surgeon in fractures.

Dr. Banks has now opened his office for the general ractice of medicine.*

Putnam County

The Putnam County Welfare Department now has a County Medical Plan, whereby services to welfare clients are rendered in accordance with the prescribed rules.

The plan calls for a medical consultant to the welfare department, and at a recent meeting the board of supervisors appointed Dr. Robert S. Cleaver, of Brewster, as county medical consultant. His appointment had been recommended by the County Medical Association.

Steuben County

Meeting June 10 at the Wagner Hotel in Bath, members of the county society voted to continue the Farm Security Administration rural medical care plan for another year in Steuben County. Dr. R. D. Haggerty, of Arkport, chairman of the rural medical care committee, reported on the workings of the plan.

A paper on the subject, "Sesame and Peanut Oil Cysts," was given by Dr. R. J. Shafer, of Corning. At the New York State Association of Public Health meeting held in Albany June 25, Dr. Shafer again spoke on this subject, on which comparatively little research has been done as yet.

A report of the nonprofit medical insurance plan now under discussion was given by Dr. Shafer, speaking on behalf of Dr. George Taylor, of Hornell, chairman of the committee for investigating the plan. It was decided that the committee should further consider the plan and report again at the next meeting.

Dr. H. B. Smith, of Corning, delegate of the first district of the county, and Dr. W. J. Tracy, of Hornell, delegate of the second district, reported on the State meeting held recently in Buffalo.

Reports were given by Dr. John Conway, of Hornell, district state health officer and chairman of the public health committee, and Dr. C. M. Lapp, of Corning, chairman of the committee on war participation.*

Suffolk County

Dr. William H. Ross, of Brentwood, observed his fifty-fifth anniversary in the practice of medicine on June 1. He began his internship at the Presbyterian Hospital in New York City on June 1, 1888, after graduating from Columbia University. Dr. Ross was recently elected chairman of the Board of Trustees of the New York State Medical Society. He has already served two terms as a trustee of the State Society.*

Westchester County

Dr. Ebba A. Dederer, Chief of the Division of Medical Inspection, of the Department of Public Instruction, began a year's leave of absence due to ill health on June 23. She will go to her ranch at San Diego, California. During Dr. Dederer's administration it is estimated that the school student group has averaged 11,000 annually, which represents 200,000 units of total annual attendance guarded by the school system's health service.*

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Stephen H. Ackerman	57	P. & S., N.Y.	July 2	Hollis
Joseph L. Boehm	66	Washington Univ., St. Louis	June 29	Manhattan
Reed B. Bontecou	78	P. & S., N.Y.	June 19	Clifton Springs
Elsie Fox	58	Cornell	June 30	Bronx
Nemorin Guilhempe	54	Boston	June 30	Manhattan
J. Victor Haberman	61	P. & S., N.Y.	April 10	Manhattan
		Berlin		
Frederick Honsinger	69	Syracuse	June 20	Bronxville
Leo B. Meyer	69	P. & S., N.Y.	July 3	Manhattan
Harrison A. Tucker	78	L.I.C. Hosp.	June 28	Brooklyn

RESULTS OF HOSPITAL TREATMENT OF NARCOTIC DRUG ADDICTS

A thorough, well-organized follow-up study has been made of 4,766 male patients discharged from the United States Public Health Service Hospital at Lexington, Ky., during the period from January 1, 1936, to December 31, 1940. All these patients had received treatment in the hospital for addiction to narcotic drugs. The only narcotics mentioned in the report are opium and its derivatives. The follow-up was carried out between July 1 and December 31, 1941: in other words, at least six months after the discharge of the last patient in 1940.

The results of the follow-up are presented in detailed tabulations, which are analyzed and discussed from various points of view. The patients fall into four general classes: voluntary, probationer patients, paroled prisoners, and prisoner patients. A probationer patient is a narcotic drug addict who, for violation of a federal law, has been given a probationary sentence on the condition that "he goes to one of the United States Public Health Service hospitals either at Lexington or Fort Worth for treatment and remains until pronounced cured by the medical staff."

The state as to addiction of 39.6 per cent of the 4,766 discharged patients could not be determined, 7 per cent had died after leaving the hospital, 29.9 per cent had relapsed to the use of drugs, and 13.5 per cent were still abstinent. Excluding the dead and the unknown, 74.7 per cent had relapsed and 25.3 per cent had remained abstinent.

The analysis of the facts about the different classes of patients led to the important conclusion that the most successful program of treatment for narcotic drug addicts includes a comparatively short period of hospitalization, not less than two months but not more than five, with acceptable employment as a prerequisite for release, and then adequate extramural supervision for three years with periodic check-up examinations. This means that for patients placed on probation for three to five years the one innovation necessary to carry this program into effect would be compulsory employment. Periodic check-up services have been initiated at the Lexington hospital. The general belief that a drug addict can never be cured is not supported by this follow-up study.—*J.A.M.A.*

NEW EMERGENCY COMMUNICATIONS SYSTEM SET UP

Through the cooperation of the Office of Civilian Defense and the Federal Communications Commission, an important aid for defense forces, the War Emergency Radio Service, has been set up. This offers a system of two-way radio communication, operating on three bands of several channels each, so that there is no practical limit to the system's flexibility.

One band connects the local Civilian Defense control center with the district control center; a second band connects the local control center with local fixed points such as wardens' posts, fire houses, hospitals, public utilities, and industrial plants; and the third band connects mobile forces, like fire trucks and emergency medical teams, with the control center.

This band can likewise be connected with walkie-talkies.

The communicating range of the WERS system is approximately 10 miles, a range limited enough to be useless to the enemy but valuable to the defense forces.

Chief advantages of the system are its wide coverage, reaching many points simultaneously, its invulnerability, its contact with moving units.

The communication service will be particularly helpful in maintaining a complete picture of the hospital situation in the event that telephones are put out of order in an emergency. Ambulances can be loaded and dispatched quickly, and mobile medical teams sent from place to place without returning to their bases.

Hospital News

Dental Hygienists Needed for Army Dispensaries

TO SUPPLY the Army with needed dental hygienists, the U.S. Civil Service Commission has eliminated the experience requirement for such personnel. Many hygienists are in demand for Army hospitals and dispensaries throughout the country, particularly in the West and Southwest.

Dental hygienists are under Federal civil service regulations and are stationed only within the United States. They receive $1,970 a year entrance salary including overtime pay. The work week of forty-eight hours includes eight hours of overtime.

Completion of a course in a recognized school of oral hygiene and registration as dental or oral hygienist is all that is necessary to qualify for the positions. There are no age limits; no written tests. Standard application forms must be filed with the United States Civil Service Commission, Washington, D.C.

Persons studying oral hygiene may also file, receive provisional appointments, and enter on duty after completion of their courses and registration.

Persons who are willing to work in any part of the country have the greatest chance of receiving appointments within a short time. Applicants who desire information about living conditions, etc., in areas where Army hospitals and dispensaries are located, should, upon receiving offer of appointment, contact the appointment officer for such information. It is possible that vacancies will occur in the Public Health Service and the Veterans' Administration.

Persons already being utilized to their fullest capacity in war work should not apply. Federal appointments are made in accordance with War Manpower Commission policies and employment stabilization plans. Persons selected for appointment may be required to secure statements of availability, but these need not be secured until offer of appointment is received.

Full information and application forms may be obtained at first- and second-class post offices, at Civil Service regional offices, and at the U.S. Civil Service Commission in Washington, D.C.

New Ambulance Attendants Highly Satisfactory

MEDICAL authorities of the municipal and privately owned hospitals in New York City have revealed that the replacement of interns by trained attendants on hospital ambulances has worked out exceedingly well in eighteen months of operation.

Dr. Edward M. Bernecker, Commissioner of the Department of Hospitals, said that ambulance calls to all hospitals had been reduced by 59 per cent as a result of the new arrangement, the doctor shortage in many institutions had been appreciably eased, and many abuses had been eliminated. Bernard McDermott, president of the Greater New York Hospital Association and superintendent of the Long Island College Hospital, said that the new system was highly satisfactory and was giving adequate service to the public, while at the same time helping the hospitals out of a critical situation.

In 1941, the year before the interns were taken off the city and privately operated hospitals, the ambulances answered 503,646 calls in the city.

On February 15, 1942, the interns were replaced by attendants in municipal hospitals and two weeks later in private institutions. The calls fell to 359,718 and during the first six months of 1943 they went down to 147,009, or an estimated 294,018 for the year.

Dr. Bernecker explained the result by pointing out that a certain part of the public looked upon the ambulance service as a sort of mobile medical service, called upon it simply to obtain treatment by a physician, and, in more than half the cases, summoned ambulances when it was not necessary. Now that it is known that under ordinary conditions physicians will not arrive with the ambulance, these abuses are being eliminated.

The new system has been in effect in 12 city hospitals and 36 private hospitals which provide ambulance service. Under ordinary circumstances the city hospitals used 60 full-time interns a year for this ambulance service, while the 36 private hospitals affected had to have 75 to 80 interns always available.

The municipal hospitals now have 136 trained attendants for the ambulance service in place of the interns, while the private hospitals have 145 to 150 such attendants. All attendants must have intensive courses in first aid and must possess Red Cross certificates.

Because of the acute manpower shortage, women are being called upon more and more to do this work in the municipal hospitals, and now 71 of the 136 attendants trained for the city hospital ambulances are women. They come principally from general hospital personnel.

Dr. Bernecker explained that the new system does not mean that emergency medical care at the scene of a serious accident is not still available.*

Student Nurses to Join Cadet Nurse Corps

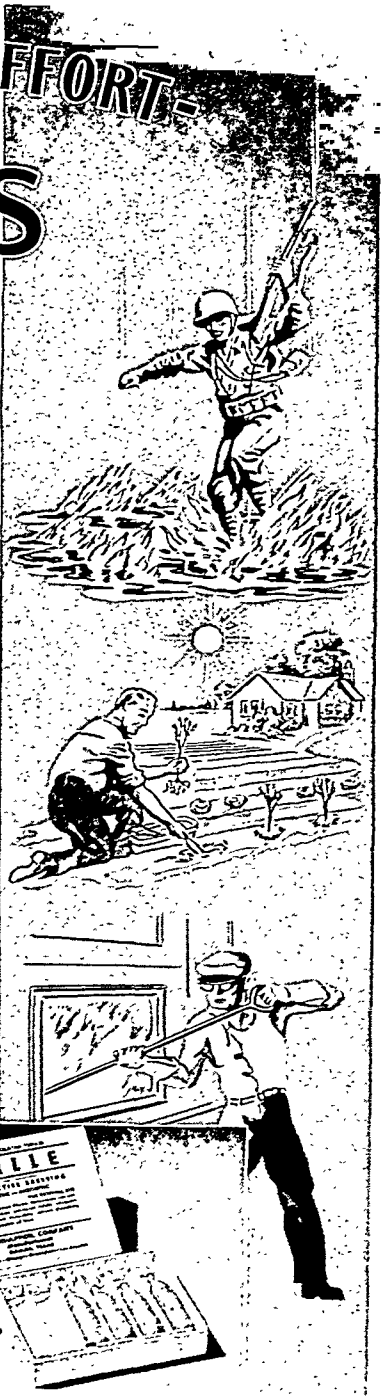
MOST of the 100,000 student nurses of the country will enlist in the new United States Cadet Nurse Corps, according to Miss Lucille Petry, director of the Corps, which will be administered by Dr. Thomas Parran, Surgeon General of the U.S. Public Health Service.

For the past two years Miss Petry has been in

[Continued on page 1454]

HAMPERING THE WAR EFFORT—

BURNS



THE increasing prevalence of burns among fighting men, industrial workers, even civilians, constitutes a major war hazard.

Whether the burn is due to fire, oil, or the effects of "Old Sol," effective first aid and local treatment is provided in

FOILLE

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NOTE Foille can be applied immediately without debridement to a burned surface—it serves also as a valuable detergent for oil-stained burns.

Foille is now extensively used in military, industrial and hospital practices in the local treatment of 1st, 2nd and 3rd degree burns, wounds and indolent ulcers.

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2-oz., pints, quarts, gallons
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[Continued from page 1452]

charge of the Public Health Service's program. She is the first woman administrator in the U.S. Public Health Service. She recently was appointed dean of nurses of Cornell University, but has received a year's leave of absence in order to give her time to organizing the new nurses' training program.

Miss Petry is a graduate of Johns Hopkins University and of the Teachers College, New York. For ten years she was associate professor of nursing at the University of Minnesota.

"No possible prospect can be overlooked if we are to meet the heavy demand of the emergency," Miss Petry said. "The Army and Navy need 2,500 nurses a month. The increased hospital enrollment and the assignment of cadet nurses to Army hospitals will release graduate nurses immediately, although the full effect of the new act will not be felt until next July."

A letter to the nursing schools contains full details of the regulations and provisions arrived at after consultation with the national advisory committee, appointed by Paul V. McNutt, Federal Security Administrator, and composed of representative members of the nursing and medical professions.

A cadet nurse may choose between civilian or military service, the letter makes clear. She must promise only that she will serve during the emergency, in exchange for the free tuition, fees, uniform and monthly stipend of from $15 to $20 that she will receive as a cadet nurse.

"The oath the cadet nurse will take requires no more from her than her original motive to render service as a nurse," Miss Petry amplified. "It is just a guarantee that she will work at the profession during the emergency."

In line with the recent Army ruling which no longer requires that an Army nurse be dropped upon marriage, a cadet nurse may be married or may marry without jeopardizing her position.

The letter emphasizes that the Federal subsidy of nurse training will in no way endeavor to standardize schools of nursing. Although three years' training will be compressed into two, the student will continue to meet the admission, scholastic, and graduation requirements of the particular school in which she is enrolled. The program will not alter the relationship between the school and the individual student in any way.

The cadet will wear the student nurse uniform of her own hospital while on duty in the hospital, but all cadets will be provided with a distinctive street uniform which will identify them as members of the corps.

Improvements

Construction of the $149,325 temporary addition to Ellis Hospital in Schenectady will be commenced as soon as the War Department Production Board has granted necessary priorities, according to John M. Gallagher, director of Region One of the Federal Works Agency.

The structure is being built by Lanham Act funds allocated several months ago, and all plans and specifications have been approved. The new building will include wards with 90 beds and service facilities and quarters for interns which will release space for an additional 22 beds in the regular hospital building.*

• • •

Work was started in Canandaigua recently on a $442,000 addition to the Veterans Hospital, which will provide accommodations for 160 more patients at the neuropsychiatric facility.

Constructed of brick, the new building will be of wing design, with basement, two floors, and attic. The contract calls for completion within four hundred days, and approximately 100 men will be employed on the job.*

• • •

Ossining's Hospital of the future, planned in the light of anticipated needs, will be given concrete form under a long-range expansion and improvement program launched by the executive committee of the Ossining Hospital Board of Trustees.

Meeting June 15, the committee decided to engage Charles F. Neergaard, noted hospital consultant, to conduct a survey at the Ossining Hospital, mapping out plans which, when put into effect, would make the hospital the kind of institution needed in the community.*

A $50,000 to $70,000 hospital has been proposed to serve the mining towns of Fine and Clifton, and a campaign to enlist public support for the project is soon to be launched.

Committees to canvass sentiment and to collect funds for financing the undertaking have been appointed in the villages of Star Lake, Newton Falls, Oswegatchie, Fine, Cranberry Lake, and Wanakena, it was disclosed.

Sponsors of the proposal said that no site had yet been selected but that the hospital, if built, would probably be at a central point in order to provide for the needs of the two townships.*

• • •

A former basement dining room at Bellevue Hospital has just been converted into a 74-bed emergency hospital for use in an air raid.

The emergency unit, a complete hospital in itself, stands ready for instant action. Its operating room is completely equipped, right down to battery-powered lights which will throw their light where the surgeon needs it even if the central power system should be bombed out. Beds, in a large ward, are kept fresh with clean linen.

The hospital-within-a-hospital is twenty feet below the surface. Where its walls reach above ground, they are of brick and concrete and 3 feet thick. Windows have been blacked out by 3-foot thick brick "blisters," with only small square openings for light and air.*

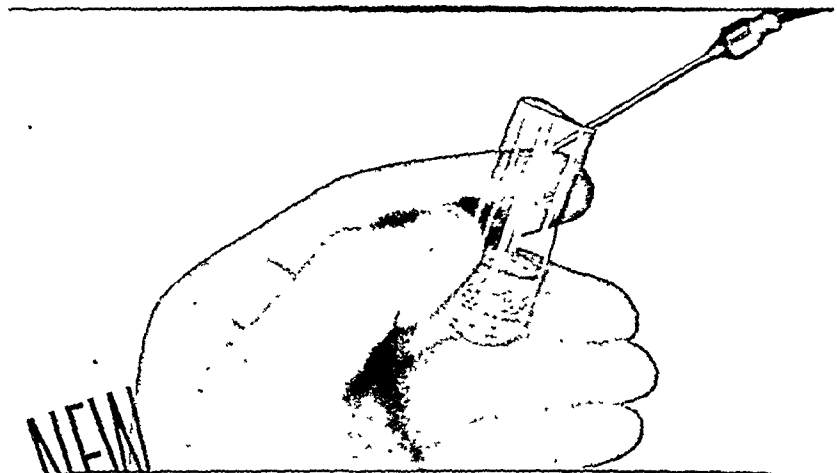
• • •

Dr. H. F. Ettinger, who formerly maintained offices and a general hospital in Redwood, recently purchased the Scott Sargent house in Theresa and remodeled and redecorated the building into a modern hospital.

The institution has been named the North

[Continued on page 1456]

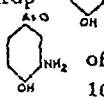
* Asterisk indicates that item is from local newspaper.



NEW

ANTISYPHILITIC PREPARATION— YIELDS FRESH ARSENOXIDE SOLUTION

It is well known that arsenoxide is the effective end-product of arsphenamine compounds. Extensive clinical experience indicates that arsenoxide possesses a relatively constant parasiticidal value and that reactions following its use are less severe than with the arsphenamines.

Phenarsine hydrochloride—Winthrop  has within its molecule the nucleus for making arsenoxide.  With each dose there is incorporated an accurately adjusted amount of anhydrous sodium carbonate, sodium chloride and sugar. The addition of 10 cc. of distilled water instantly yields arsenoxide in isotonic solution (CO_2 escaping in gaseous form). Thus, the physician is assured that *each time in each case* the active antiluetic which he injects is fresh.

All forms of syphilis—primary, secondary, tertiary, congenital—are treated with Phenarsine hydrochloride—Winthrop.

Booklet containing essential details sent to physicians on request.

How Supplied: Ampuls of 0.045 Gm. and 0.068 Gm., boxes of 10. Ampuls of 0.045 Gm. and 0.068 Gm., boxes of 10 ampuls with 10 ampuls of sterile distilled water (10 cc.). Ampuls of 0.45 Gm. and 0.68 Gm., boxes of 10.

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911M

[Continued from page 1454]

Country General Hospital and was officially opened to the public on Saturday, June 5.

Every floor has a minimum of two exits to be used in case of fire. The hospital has a full capacity of 25 beds, is entirely modern, and equipped for major surgery.

There will be two registered nurses on duty at all times. Miss Dorothy Abrahams, former superintendent of Mt. Eden Hospital, New York City, and Miss Dorothy Adamic, former operating room supervisor at the same hospital, will be in charge.*

. . .

Construction was begun in June on the new addition to Margaretville Hospital in Margaretville. The addition, a two and one-half story building, will raise the present bed capacity from 12 to 25 single rooms, with a top capacity, in case of emergency, of 50 beds. The addition is being erected at a cost of $40,000 and will include a completely new operating room and delivery room, together with additional surgical and obstetric beds. Two new nurseries are also included in the plan.

. . .

In Watertown, construction of the new two-story School of Nursing of the Mercy Hospital, to be known as McAuley Hall, is progressing rapidly. Excavation and foundation work started last fall, but work on the superstructure did not begin until April. Most of the first floor walls are already built. About 40 men are engaged in the construction of the building.*

At the Helm

Chester H. Lang was re-elected president of the Ellis Hospital Association of the City of Schenectady at the annual meeting of the association at the hospital on June 21. Also renamed were Robert H. White, vice-president; Arthur S. Golden, vice-president; Allen P. Marshall, treasurer and assistant secretary; and W. Howard Wright, secretary.

Re-elected directors for terms of three years were Jesse M. Howell, Austin Liecty, W. L. Lentz, Edward A. Mahoney, Roy C. Muir, and James W. Yelverton. Renamed assistant managers for one-year terms were Ellis F. Auer and Ernest E. Johnson.*

. . .

Miss Frances E. Dalton, new superintendent of the Leonard Hospital in Troy, completed eighteen years of service with that institution on June 21.

Miss Dalton became affiliated with the hospital as night superintendent, a post which she filled until her appointment as superintendent on February 22 of this year.

Foremost among the changes that Miss Dalton has instituted is a complete new dining room for employees. The new rest room for the nurses' aides is modern and complete in every detail. In addition, a rest and recreation room has been equipped for the kitchen employees, where they may spend their off time in relaxing or reading. Facilities have been placed there for card and checker games for the workers.

Miss Dalton has also brought about the arrangement of new storerooms.*

. . .

Alfred L. Golden, author and playwright and former public relations director of the Hospital Service Association of Pittsburgh, has been made director of public relations of the Associated Hospital Service of New York, it was announced recently by Louis H. Pink, president of the organization. William G. O'Brien, of White Plains, formerly with the War Production Board, has been made director of sales, a new division under the supervision of Frank Van Dyk, vice-president in charge of enrollment.*

. . .

Beginning July 1, 15 Poughkeepsie-area physicians and surgeons took the place of interns at Vassar Brothers Hospital, inasmuch as no interns will be available to the institution from July to January 1, 1944.

Dr. Scott Lord Smith, chief of staff of the hospital, said that the acute shortage of physicians in the country, brought on by the needs of the armed forces, "will make its first real appearance in Dutchess County because of the loss of the services of the interns at Vassar Hospital." The local hospital has had the service of five interns, and, under a limited allotment, two interns will be made available to the institution on January 1, 1944.

Meantime, the 15 physicians and surgeons of the Poughkeepsie area who have volunteered their services will serve a 24-hour day about twice a month at the hospital.

"In order to meet this condition at Vassar Brothers Hospital," said Dr. Smith, "the attending and assistant attending physicians and surgeons at the hospital have volunteered to give one full day's time at intervals of about two weeks, which they will spend entirely at the hospital, from noon of one day to noon of the next day, to carry on the routine work of the interns."

These doctors will be known as Officers of the Day. Any of their patients, who feel that they must see them, can find them at the hospital on the days when they are scheduled there.

Dr. Frederick M. Hedgecock, of Poughkeepsie, received the first assignment as Officer of the Day at the hospital.

The other physicians and surgeons who have volunteered to serve during two full days of the month are:

Drs. Clifford A. Crispell, Albert A. Rosenberg, Emil A. Stoller, William E. Garlick, of Wappingers Falls; William H. Meyer, Gilbert MacKenzie, of Pleasant Valley; John M. Jacobus, Aaron Sobel, Howard Townsend, John H. Dingman, Donald Malven, Archibald W. Thomson, Scott Lord Smith, and Joseph L. Cummings.*

. . .

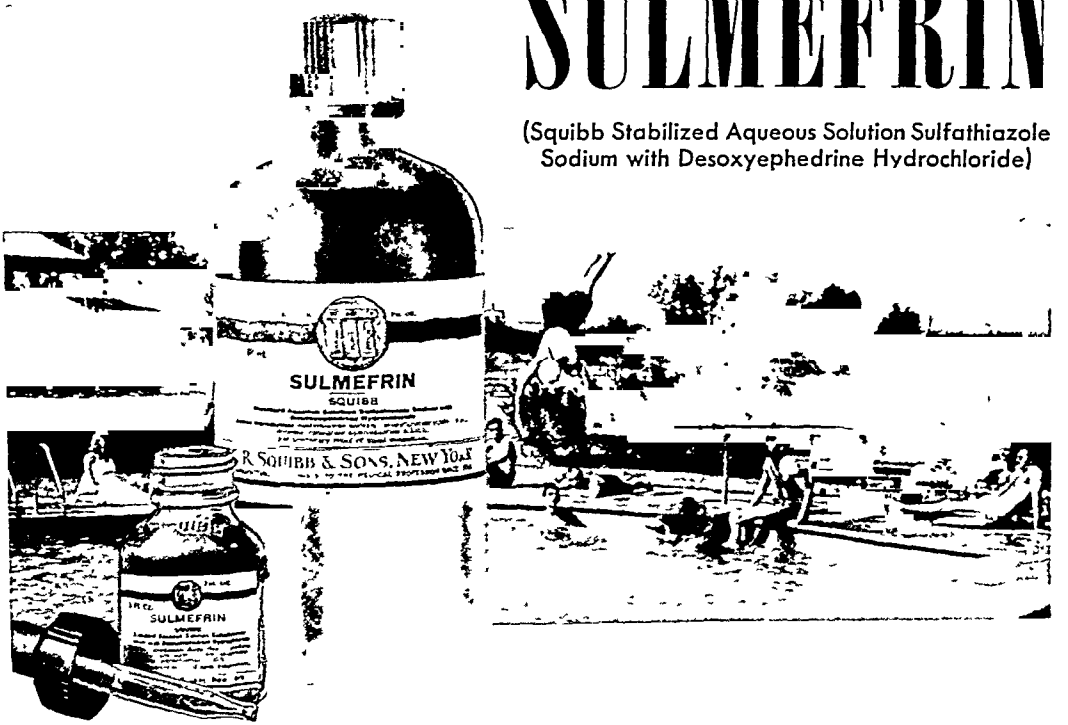
Nine staff members of Marine Hospital, Clifton, Staten Island, including Dr. William Y. Hollingsworth, medical officer in charge, and the two surgeons whose discovery of a painless, safe childbirth

[Continued on page 1458]

For Summer Sinusitis use

SULMEFRIN

(Squibb Stabilized Aqueous Solution Sulfathiazole Sodium with Desoxyephedrine Hydrochloride)



SWIMMING and diving account for a high incidence of sinusitis during the summer months. This year you can provide your patients with prompt, effective relief by prescribing Sulmefrin.

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Affords quick relief of nasal congestion—facilitating drainage and ventilation • *Mildly alkaline* (pH 8.9 ± 0.3) helping to dissolve mucous and mucopurulent secretions. • *Practically non-irritating*—Producing effective shrinkage of swollen tissues without subsequent edema, sneezing, tachycardia or nervousness. • *Remarkably stable*—As demonstrated by exposure to direct sunlight, air, oxygen and boiling.

Sulmefrin is available in 1-ounce and 1-pint bottles. Caution should be observed in administering this preparation to patients who have exhibited sensitivity to sulfonamides.

* "Sulmefrin" (Reg. U. S. Pat. Off.) is a trade mark of E. R. Squibb & Sons

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[Continued from page 1456]

method was reported last fall, have been promoted by the U.S. Public Health Service.

Dr. Hollingsworth, who has been at the Island Hospital since 1937, was raised in rank from senior surgeon to medical director—the equivalent of a colonelcy in the Army or a captaincy in the Navy.

The two doctors whose discovery of the easy childbirth method was described in the *Journal of the American Medical Association* and in newspaper and magazine interviews are Dr. Robert A. Hingson and Dr. Waldo B. Edwards.

Both have been promoted from passed assistant surgeon to surgeon—a rank equivalent to a majority in the Army or a lieutenant-commandership in the Navy.

Other promotions at Marine Hospital are:

Dr. Donald J. Galagan, from passed assistant dental surgeon to dental surgeon; Dr. Charles R. Mallary, from passed assistant surgeon to surgeon; Dr. Donald W. Patrick, from passed assistant surgeon to surgeon; Dr. Raymond S. Roy, from passed assistant surgeon to surgeon; Dr. James L. Southworth, from assistant surgeon to passed assistant surgeon (the latter the equivalent of a captain in the Army or a lieutenant in the Navy); and Thomas C. Armstrong, from passed assistant pharmacist to pharmacist.*

• • •

The Surgeon General's Office recently came to the rescue of the Binghamton City Hospital to prevent that institution from operating without a resident physician.

At the appeal of Jerome F. Peck, superintendent, a year's deferment from Army medical service was granted for Dr. Lloyd D. Tuttle, who has been an intern for a year at the hospital, so that he can head the undermanned intern staff.

Mr. Peck said that Dr. Tuttle is a reserve officer. Five other City Hospital interns who also hold reserve commissions are due to be called into active service.

The hospital was assisted in retaining the resident physician through the Hospital Board of Procurement and Assignment Service of the Surgeon General's Office.*

• • •

The board of managers of Nathan Littauer Hospital, in Gloversville, has elected Samuel Rothschild president of the board for the coming year. Mr. Rothschild, who was vice-president of the board, succeeds the late A. C. Saunders, who served as president from 1926 until his death.

It was announced at the meeting that Lucius N. Littauer is preparing plans for the erection of either a wing or a new floor on the laboratory building, as a memorial to Mr. Saunders.

Another memorial to Mr. Saunders was announced by Jacob Zuckerwar, a member of the board, who plans to donate a modern electric bookkeeping machine.

The board elected John Naudin vice-president to succeed Mr. Rothschild. Miss Jennie Walker was named superintendent and executive manager of the hospital, and Miss Marjorie McComb was promoted from superintendent of nurses to assistant superintendent of the hospital.

The board announced that Miss Lillie Deimler has been engaged as superintendent of nurses to succeed Miss McComb. Miss Deimler is a graduate of the University of Pennsylvania, and is taking her master's degree at New York University. For the past ten years she has been instructor of nurses at the Wilkes-Barre, Pennsylvania, general hospital.*

• • •

Twenty-three Army officers, six of whom are from the State of New York, have been assigned to duty at Rhoads General Hospital, which is now under construction in Utica.

New York State physicians on the staff will include Lt. Col. Edward K. Reid, of Rome, executive officer of the hospital; Lt. Col. Arthur C. Roblin, of Syracuse, head of the dental service; Major Louis D. Dantzig, of New York City, specialist in dermatology; Capt. Myron L. Ogden, of Utica, of the dental corps; Capt. Louis A. Jones, formerly of Utica, post exchange officer; and Capt. John W. Calder, of Utica, Medical Administrative Corps.

The 116-building institution, which is to have facilities for 1,500 patients, will probably be opened some time in the middle of the summer, according to Col. A. J. Canning, commanding officer.

• • •

Dr. C. P. Rhoads, director of Memorial Hospital for the Treatment of Cancer and Allied Diseases in New York City, has been given leave of absence to become Chief of the Medical Division of the Chemical Warfare Service of the United States Army, with the rank of colonel, according to Harry Pelham Robbins, president of the hospital.

Mr. Robbins announced also the appointment of Dr. F. W. Stewart, pathologist of the hospital, as acting director, with Dr. Howard Taylor, Jr., attending surgeon of the gynecologic service, as his assistant.*

• • •

Dr. Jesse L. Bennett, a member of the staff of the Creedmoor State Hospital for more than ten years, has been named acting superintendent to succeed Dr. George W. Mills, who resigned after more than thirty-seven years in the state medical service.

Dr. Bennett came to Creedmoor March 15, 1932, and was promoted to the post of first assistant superintendent a year ago.*

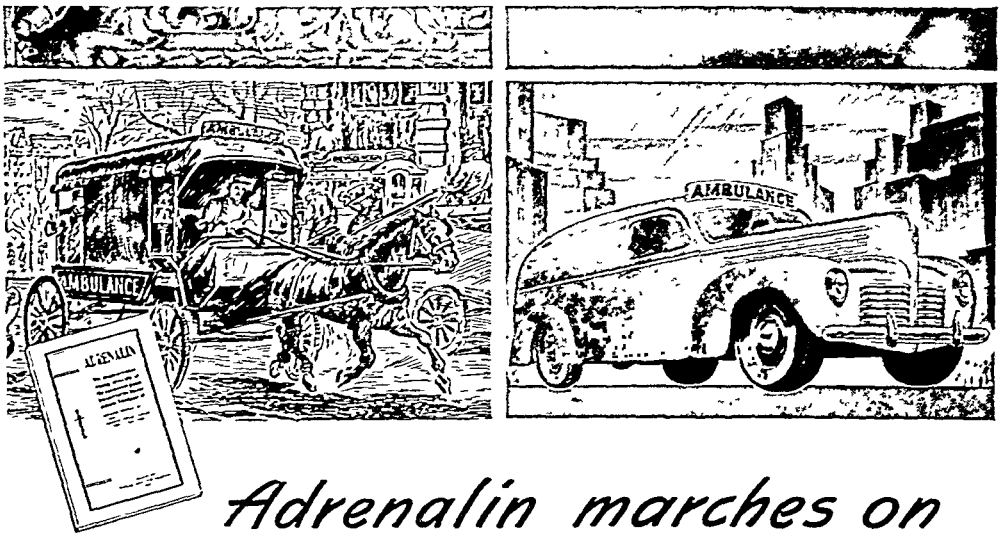
Newsy Notes

In winding up the year's activities, reports were received from various committee chairmen of the New Rochelle Hospital Board of Governors at their meeting on June 21.

Mrs. Harold W. Herrick, president of the New Rochelle League for Service, presented the board with a check for $10,000 which represented receipts from the League's spring activities, the Hospitality Corner in the Hospital, and the Thrift Shop.

Mrs. Frank Hermes, chairman of the annual church bridge committee, presented a check for

[Continued on page 1460]



Adrenalin marches on

"The therapeutic applications of adrenalin are already numerous and new uses for it are constantly being found out by different experimenters. Generally speaking, adrenalin, when locally applied, is the most powerful astringent and hemostatic known . . . and it is the strongest stimulant of the heart . . . it will unquestionably attain to a prominent place in the materia medica."

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PARKE, DAVIS & COMPANY

DETROIT • MICHIGAN

[Continued from page 1458]

$3,907, which represented returns from bridges and special donations from 20 churches in New Rochelle, Larchmont, and Pelham. This amount represents an increase of 25 per cent over last year's returns.

James T. Heenehan, chairman of the Membership Appeal, which is being held in observance of the hospital's fiftieth anniversary, announced a total of 507 new memberships for a total of $7,531.*

. . .

The annual June festival of St. Mary's Maternity Hospital and Children's Home, sponsored by the Circle of Mercy in Syracuse, was held on June 12 on the hospital grounds, the proceeds providing new equipment in the children's department.

. . .

Legacies of $21,351.31 have been paid to the board of trustees of Crouse-Irving Hospital and the Old People's Home department of the Hartford, Connecticut, Hospital, and one of $3,000 to the Syracuse Association of Workers for the Blind, under the will of Henry Howard Smith.*

. . .

Consolidation of the Robin's Nest, children's hospital in Tarrytown, and the Tarrytown Hospital has been unanimously agreed upon by the governing bodies of the two institutions and now awaits only favorable action by the members of the corporations before being consummated.

According to the plan of consolidation outlined in letters addressed to the members of the Tarrytown Hospital Association and of the Robin's Nest by Frederick P. King and Mrs. Henry K. Browning, respectively, the funds of the Robin's Nest will be used in the development of the new Tarrytown Hospital site on the former David Luke estate on Broadway at the White Plains Road, while the name of the Robin's Nest will be perpetuated by giving that name to the children's ward of the enlarged hospital.*

. . .

The "floating hospital" of St. John's Guild entered on its seventy-seventh season July 1, with almost 300 mothers and children on board for its first trip of the summer.

. . .

Reliance on volunteer workers is becoming increasingly necessary for many hospitals throughout the state. In an effort to offset the manpower shortage, Nassau Hospital in Mineola has offered to train men volunteers, as well as nurses' aides, for duties as orderlies and assistants. According to George L. Davis, superintendent, instruction given at Nassau Hospital does not obligate the volunteer to serve there, for graduates of the course will be accepted in any hospital in the county.

A nucleus of 7 men has already been formed for the Men's Volunteer Attendants, whose classes will begin early in August. Volunteers will wear white uniforms, with black, pin-stripe jackets supplied by the hospital.

In Niagara Falls both Memorial Hospital and Mt. St. Mary's Hospital have asked for men to fill hospital staff vacancies during the four-hour shifts between 8 A.M. and midnight.

Requests have also been renewed for nurses' aides.

. . .

Continuing the campaign launched in the recent city-wide CDVO recruitment drive, the Department of Hospitals recently began the distribution of 150,000 pamphlets for enrolling additional hospital volunteers and members of the Citizens Defense Nurse Corps of the Emergency Medical Service.

The pamphlets will be distributed through the borough CDVO offices, the United Hospital Fund, and the 1,600 Sector Warden Headquarters of the Air Warden Service.

The hospital volunteer pamphlet states that volunteers for many types of service are urgently needed "because thousands of doctors, nurses, and other hospital workers have gone to war," and because this trained personnel cannot now be replaced. The Citizens Defense Nurse Corps pamphlet seeks the enrollment of registered nurses for the Emergency Medical Service, set up to provide medical care for the civilian population in the event of enemy action. Citizens Defense Nurse Corps members will assist in caring for air raid casualties at the scene of an incident and in casualty stations and hospitals.

"Our hospitals are in dire need of additional volunteers," said Hospital Commissioner Edward M. Bernecker, in announcing distribution of the pamphlets. "We have a place in our hospitals for every type of volunteer service and sincerely hope many hundreds more men and women will enlist in this necessary work on the home front. Volunteer workers can relieve the professional staffs of much necessary clerical work and of other duties and, furthermore, these volunteers would be invaluable in any emergency that may come to our city because of enemy action."

. . .

The first women's ambulance unit of the Mission Militaire Française made its initial public appearance in new khaki uniforms on Bastille Day in New York City. Fifteen French women and one American compose the unit, named the Rochambeau, which is scheduled to leave soon to join the French Army with headquarters in North Africa. It was organized by Mme. Madeleine de Montgomery, director of the Section Féminine of the mission.*

. . .

The new twelve-story Lebanon Hospital, in the Bronx has been taken over by the Army for the Wacs.

L. Victor Weil, president of the institution, said that the hospital was the first institution taken over by the Army to be used exclusively for women.

The hospital, Mr. Weil stated, was proud to be in the position to turn over to the medical division of the Army "not only a charitable but a patriotic institution."

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ABSORPTION OF FAT AND
FAT-SOLUBLE VITAMINS
LIVER CIRRHOSIS
HEPATIC INSUFFICIENCY

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AN EXPLANATION

Question.—I would like to ask you a fair question. If a doctor is doctoring a doctor, does the doctor doing the doctoring, doctor the doctor the way the doctor being doctored wants to be doctored or does the doctor doctoring the doctor doctor the doctor the way he usually doctors?

Answer.—As I understand it, the doctor doctors the doctor the way he thinks the doctor should be doctored, but while the doctor doing the doctoring is doctoring the doctor, the doctor being doctored demands that the doctor doctor him the way he, the doctor who is being doctored demands. The doctor doing the doctoring and the doctor being doctored then get into an argument about the doctoring. This aggravates the doctor being doctored, and the doctoring done by the doctor doing the doctoring is of no avail. That is why doctors die younger than other people. I hope I make myself clear. —*E. V. Durling, in the San Francisco Examiner*

ANTI-CANCER—"N"

1. Primitive races eating freely of visceral organs as well as muscle meat, have very little cancer.

2. Civilized white men, limiting their flesh diet practically exclusively to muscle meat, have a high cancer incidence.

3. The cancer rate of primitive races increases as visceral meat is decreased in the diet.

4. Cancer is probably a dietary deficiency disease due to absence of some constituent of certain visceral organs. From the investigations of others it appears that this constituent is most abundant in brain and stomach tissue.

5. Therefore, to prevent cancer, one might conclude that brain or stomach tissue should be added to the diet.

6. The name "Vitamin N" is tentatively suggested for the cancer inhibiting factor.—*Ill. Med. J*

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Woman's Auxiliary

To the Medical Society of the State of New York

THE National Convention of the Woman's Auxiliary to the American Medical Association was held in Chicago, June 6–9, with headquarters at the Drake Hotel. There were 171 members and guests registered.

New York State was represented by Mrs. Luther H. Kice, Mrs. H. F. Pohlmann, Mrs. Carlton F. Potter, Mrs. Carlton E. Wertz, and Mrs. J. Emerson Noll. Mrs. Noll served on the nominating committee. Mrs. Luther H. Kice was reappointed to the chairmanship of the Legislative Committee by the incoming President.

At luncheon on Monday, June 6, Dr. Frank P. Hammond, Chairman of the Advisory Council of the Illinois State Medical Society, spoke on the subject "Doctors' Ladies—Their Closest Allies."

Immediately after the luncheon, the opening session of the House of Delegates was called to order. The afternoon was devoted to reports of officers and committee chairmen. At the second session, reports of state presidents were received. All these reports showed a constant, healthy growth of the Auxiliary and much enthusiasm for the future. One new state auxiliary, Maryland, was organized during the year, with 22 members in one county unit.

This new auxiliary was represented by its organizing president, who reported progress in further organization in the state. A total of 42 states are now organized. Twenty-seven states were represented by reports read.

On Monday afternoon a tea was given, honoring the President and President-Elect. A luncheon in honor of the past national presidents of the Woman's Auxiliary was held on Tuesday, June 7, at which Brigadier General Fred Rankin, retiring president of the American Medical Association, and Dr. James E. Paullin, the new president, were guest speakers. Brief remarks were also made by Dr. Morris Fishbein, editor of the *Journal* of the A.M.A., and Dr. W. W. Bauer, chief of the Bureau of Education of the A.M.A.

At the session Tuesday afternoon, the following slate of officers was unanimously elected: president, Mrs. Eben E. Cary, of Wisconsin; president-elect, Mrs. David W. Thomas, of Pennsylvania; first vice-president, Mrs. Eustace A. Allen, of Georgia; second vice-president, Mrs. J. Howard Hornberger, of New Jersey; third vice-president, Mrs. F. G. Lindemulder, of California; fourth vice-president, Mrs. F. W. Mulsow, of Iowa; recording secretary, Mrs. David T. Berg, of Montana; treasurer, Mrs. H. F. Wahlquist, of Minnesota; directors (two years): Mrs. J. P. Simonds, of Illinois; Mrs. E. Hamer, of Arizona; and Mrs. W. W. King, of Colorado; and director (one year), Mrs. Frank N. Haggard, of Texas.

MRS. J. EMERSON NOLL

County News

Columbia. The last meeting for the year was held at the Nurses' Home of the Hudson City Hospital. The officers were installed for the coming year. The usual work for the Hospital followed the business meeting.

Nassau. Mrs. Byron D. St. John, of Port Washington, has been appointed convention chairman for the 1944 convention, to be held in New York City. The sixth annual Cancer Institute was held on May 12. Mrs. Luther H. Kice and Mrs. H. B. Ritchie were the guest speakers. The annual meeting and luncheon were held at Hotel Woodstock, New York City. Nassau County has had a series of outstanding educational programs this year.

AND ANOTHER THING

Anent the conservation of time and energies of hospital staffs, we have often wondered if flowers, which are so pleasant and agreeable in the daytime, suddenly become poisonous in a marasmic way with the advent of darkness.

If they do not, why is about an hour of the nurses' valuable time taken each evening in setting them all out to clutter up the corridors, and in moving them back into the rooms in the morning?

Are they supposed to "use up the oxygen" during the night when the patient sleeps? Cut flowers are dead, for all respiratory purposes, and the growing plants utilize light and carbon dioxide and give off oxygen in their growing process.

The reason for, and meaning of, this custom of moving all of the plants and flowers out of patients' rooms at night must be lost in antiquity, like the meaning of the buttons on a man's coat sleeve.
—*Rocky Mountain, M. J.*

"ANXIETY CHEMICAL" FOUND IN BLOOD

Chemists have found a mysterious "anxiety chemical" in the blood stream of persons under emotional stress, it was disclosed recently at the New York Academy of Medicine.

While the nature of the chemical still is unknown, four physicians at the New York Hospital reported that the secretion exuded in the blood of a person during an acute emotional experience modified the rhythmic contractions of a rabbit intestine.

They pointed out that the blood from normal subjects, those without emotional disturbance, showed no effect in the experiments, thus emphasizing that the changes in a body during an emotional strain were caused by the chemical in the blood stream.

The report was submitted by Drs. A. T. Hilhort, S. M. Small, E. J. Doty, and W. P. Bartels, of the Payne Whitney Psychiatric Clinic of the New York Hospital.

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BILLIONS?

Money in circulation, just a few months back, amounted to approximately $15,000,000,000 (about $115 for every man, woman, and child in this country).

In order to appreciate the extent of this amount and its significance, one must realize the fact that it is three times the peak figure reached during the boom of the 20's and double the amount recorded in September, 1939, at the outbreak of the present war in Europe.

Greatly increased war industries and payrolls, and prevailing low savings bank interest have been contributing factors to a situation which must be regarded as a threat for further inflationary trends. In the past ten years, successive government spending of millions and billions for attempted rehabilitation from the depression, for defense and the war effort have been so common that the average person remains semi-indifferent, though somewhat hazy, regarding the magnitude of 15 billions of dollars and what it represents.

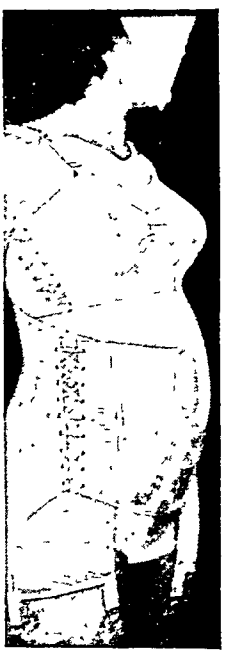
What is a billion dollars?

What do you think? Maurice Sherman, editor of *The Hartford Courant* (Conn.), tells the readers that if a person were to spend one dollar per minute it would take 1900 years to spend a billion dollars—or if he started in the year 700 B.C. with a billion dollars and spent a thousand dollars a day, there would still be a million dollars left on January 1, 2039 (96 years from now).

Multiply this by 15 and you get a picture of the money in circulation.

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Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N.Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

REVIEWED

Healthy Babies Are Happy Babies. By Josephine H. Kenyon, M.D. Third edition, completely revised. Duodecimo of 343 pages. Little, Brown & Co., 1943. Cloth, $1.50.

The theme of this book as given in the title is most appropriate. Any physician with experience in baby care will surely agree with the fundamental thought underlying the presentation. As a practical, up-to-date handbook on the care, health, feeding, and training of infants and young children this publication of Dr. Kenyon's has earned well-deserved recognition and popularity. It is an excellent guide for the mother, replete with information and sensible advice by an author whose opinions are authoritative and based on long experience.

JOSEPH C. REGAN

Manual of Veterinary Bacteriology. By Raymond A. Kelser, D.V.M., and Harry W. Schoening, V.M.D. Fourth edition. Octavo of 719 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $6.50.

The fourth edition of the book by General Kelser, chief of the Army veterinary division, was prepared by Dr. Harry W. Schoening. The volume is most appealing in its external appearance as well as in the arrangement of the subject-matter. The modest title does not do justice to the contents, which includes chapters on theories of infection and immunity, bacterial variation, fungi, protozoa, viruses, serology, and hematology. The part on systematic bacteriology is arranged according to the orders of bacteria following Bergey's *Manual*, with ample information on the pathogenicity and epidemiology of the various species. The book is unique in combining scientific thoroughness of presentation and up-to-date quotations from the literature with detailed descriptions of technical procedures.

S. BORNSTEIN

Outline of Psychiatric Case Study. A Practical Handbook. By Paul W. Preu, M.D. Second edition. Duodecimo of 279 pages. Paul B. Hoeber, Inc., 1943. Cloth, $2.75.

Three years have elapsed since the first edition of this practical handbook, and now we have an extensively enlarged and revised second edition.

The reviewer is pleased to note certain revisions which add to the significance and usefulness for history-taking of adults, such as giving the first place to the complaint problem and the present illness about which the other components of the history-taking revolve. The chief contribution of the second edition lies in the addition of an extensive outline of case study for use with the child and adolescent, although developmental problems of infancy and early childhood are also touched upon. The outline of behavioral examination for use with the child is particularly commendable.

This book, which is a splendid example of the genetic-dynamic approach to a useful outline of psychiatric case study, is without a peer and will be widely read not only by the specialist in psychiatry, but also by medical students, physicians, psychologists, sociologists, and social service workers.

The publishers are to be complimented of its splendid format, easily readable type, and use of nonglaze paper.

FREDERICK L. PATRY

Medical Clinics of North America. Vol. 27, No. 1, January, 1943. (Chicago Number.) Philadelphia, W. B. Saunders Co., 1943. Published bimonthly (six numbers a year). Cloth, $16 net; paper, $12 net.

The first half of this number of the *Medical Clinics of North America* is devoted to gynecologic disorders that can be treated without hospitalization.

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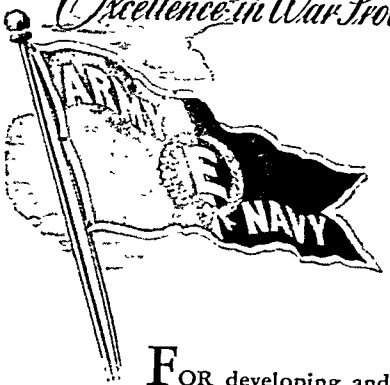
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Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N.Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

REVIEWED

Healthy Babies Are Happy Babies. By Josephine H. Kenyon, M.D. Third edition, completely revised. Duodecimo of 343 pages. Little, Brown & Co., 1943. Cloth, $1.50.

The theme of this book as given in the title is most appropriate. Any physician with experience in baby care will surely agree with the fundamental thought underlying the presentation. As a practical, up-to-date handbook on the care, health, feeding, and training of infants and young children this publication of Dr. Kenyon's has earned well-deserved recognition and popularity. It is an excellent guide for the mother, replete with information and sensible advice by an author whose opinions are authoritative and based on long experience.

JOSEPH C. REGAN

Manual of Veterinary Bacteriology. By Raymond A. Kelser, D.V.M., and Harry W. Schoening, V.M.D. Fourth edition. Octavo of 719 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $6.50.

The fourth edition of the book by General Kelser, chief of the Army veterinary division, was prepared by Dr. Harry W. Schoening. The volume is most appealing in its external appearance as well as in the arrangement of the subject-matter. The modest title does not do justice to the contents, which includes chapters on theories of infection and immunity, bacterial variation, fungi, protozoa, viruses, serology, and hematology. The part on systematic bacteriology is arranged according to the orders of bacteria following Bergey's *Manual*, with ample information on the pathogenicity and epidemiology of the various species. The book is unique in combining scientific thoroughness of presentation and up-to-date quotations from the literature with detailed descriptions of technical procedures.

S. BORNSTEIN

Outline of Psychiatric Case Study. A Practical Handbook. By Paul W. Preu, M.D. Second edition. Duodecimo of 279 pages. Paul B. Hoeber, Inc., 1943. Cloth, $2.75.

Three years have elapsed since the first edition of this practical handbook, and now we have an extensively enlarged and revised second edition.

The reviewer is pleased to note certain revisions which add to the significance and usefulness for history-taking of adults, such as giving the first place to the complaint problem and the present illness about which the other components of the history-taking revolve. The chief contribution of the second edition lies in the addition of an extensive outline of case study for use with the child and adolescent, although developmental problems of infancy and early childhood are also touched upon. The outline of behavioral examination for use with the child is particularly commendable.

This book, which is a splendid example of the genetic-dynamic approach to a useful outline of psychiatric case study, is without a peer and will be widely read not only by the specialist in psychiatry, but also by medical students, physicians, psychologists, sociologists, and social service workers.

The publishers are to be complimented of its splendid format, easily readable type, and use of nonglaze paper.

FREDERICK L. PATRY

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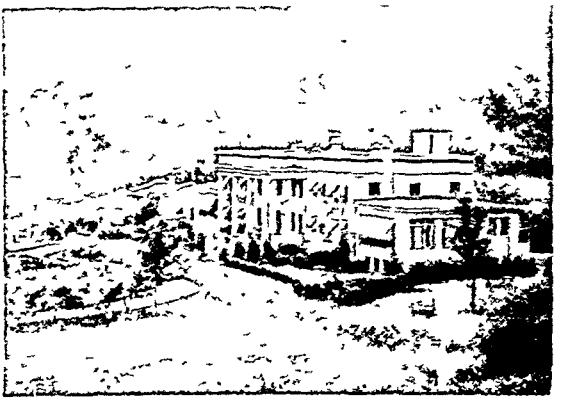
George W. Michell, M.D., *Medical Director*

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ABSENTEEISM

According to the Office of War Information, war plants without systematic plans for reducing the causes of absenteeism have almost twice the rate of job absences as those which do have such programs. This fact was based on research among 18 war plants and interviews with their employees in various sections of the country, on talks with absentees themselves, and on information furnished by representatives of labor, management and community leaders.

Plants with systematic programs averaged an absence rate of 4.4% per month, while those with hit-or-miss methods ran almost double that rate An analysis of the records covering 1,800 workers (100 in each plant surveyed) showed:

1. Married women are absent most. Next come single men, then single women. Married men are absent least.

2. Employees of three months to two years service were most frequently absent. Next came those with less than three months service. Least absent were the old hands with more than two years experience.

3. New residents of the community are more often absent from the job than regular residents

4 Workers who object to plant health or safety conditions, or lunch arrangements, or promotional policy, are more frequently absent than satisfied workers

Suggestions made by the workers themselves for cutting down absenteeism, were:

1. Rearrangement of hours of work and not granting overtime pay for the week in which the worker is absent.

2. Improvement of plant conditions, community conditions, wages and productive efficiency.

3. Educate employees, reward regular attendance, and discharge the absentees and put them in the Army.

The typical proposals for rearrangement of hours of work showed the workers concerned with reducing long hours, or concentrating work so they will have afternoons or days to themselves Some were "Give Saturday afternoons off." "Let everyone take a day off a month to take care of personal work." "Permit one shopping day a month." "Give workers a vacation." "Give five and a half days a week and work longer each day."

Many complaints seem to be the difficulty of getting decent food in or near the plant.

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"DOCTOR JONES" SAYS—

That old expression about getting "in a rut"—I s'pose there's an awful lot of folks that've grown up since the horse and buggy days that it don't mean much to 'em—that expression don't. All their roading's been in an automobile on hard roads. But I can remember back when, in the country, it was all dirt roads. Most everybody drove in the same track and along in the spring they'd get soft—the roads would and then they'd freeze and you'd have ruts five or six inches deep. If you had to pass somebody it'd be all your life was worth to get out of 'em.

It reminds me of that story about the farmer that his wife'd gone off her head. He said he couldn't understand how anything could've happened to her mind; she hadn't been off'n the farm in three years.

But getting "in a rut"—the way we use the expression it means getting in the habit of doing the same things over and over in just the same way day after day.

The old saying "nature abhors change"—that goes for human nature, too. A lot of folks, when they get in a rut, they feel sort of fearful about getting out of it and doing something different—like we used to wonder if the old buggy was going to tip over if we got out on the side. We didn't have any choice though. We couldn't all stay in the same ruts and pass each other, so we had to take a chance. And we usually got by all right. Yes, there's a lot of folks—it makes 'em nervous just to think about doing something different than they've been accustomed to—or doing it a different way. I suppose that's the main reason why there's usually opposition to innovations.

But variety, they say, it's "the spice of life." A spice—that's supposed to add flavor and give you an appetite and so on. And that's the way it seems to work. The fellow that stays in the rut can only go where the rut takes him and just following somebody else's wheeltracks ain't very inspiring. He not only loses his interest but he's liable to lose his nerve at the same time.

The fellow that refuses to be bound by ruts—he may use 'em when it serves his purpose but he ain't afraid to pull out and make his own track—that's initiative. Somebody said we ought to do something every day that we don't want to do. Anyway, when we're confronted with jobs we're fearful of, it's a challenge. Going ahead in spite of our fears—it's a lot easier next time. And these young folks—it may make all the difference between success and failure. "Anything to do with health?" Well, mental hygiene is health, ain't it?—*Paul B. Brooks, M.D., in Health News*

DOUBLE PURPOSE

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"No, sir; but they just fit my airgun."

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For doctors interested in what the Navy is doing along medical lines, a copy of the August issue of *Shipmates* may be found interesting reading

Shipmates is an official publication of the United States Navy, so its contents should be authentic.

The editors announced in July that the entire August 1943 issue would be devoted to features pertaining to the medical department of our navy

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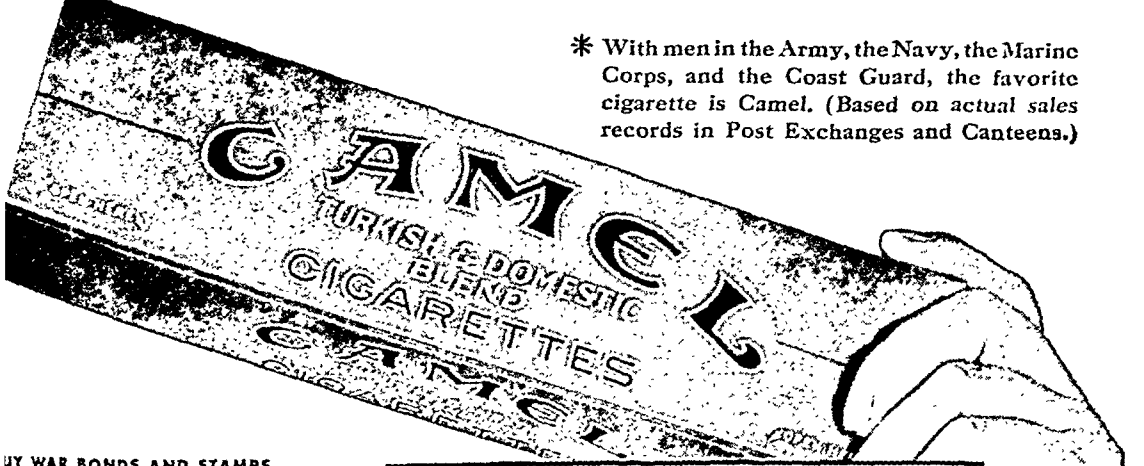


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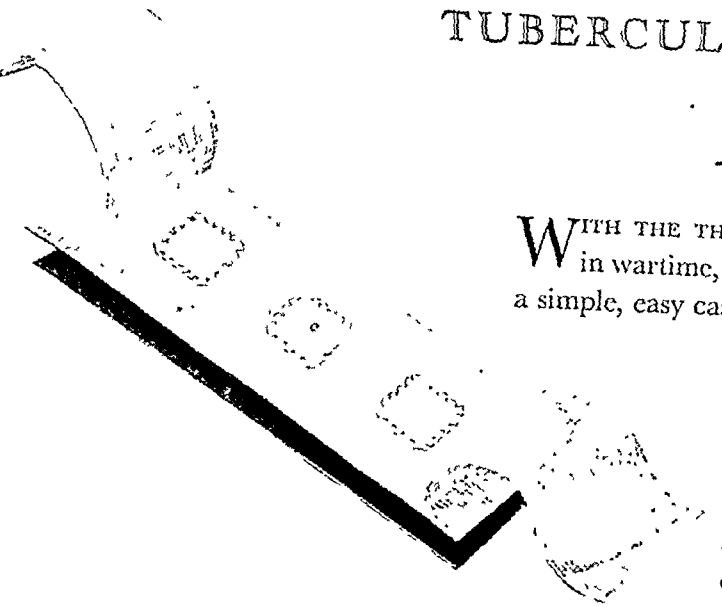
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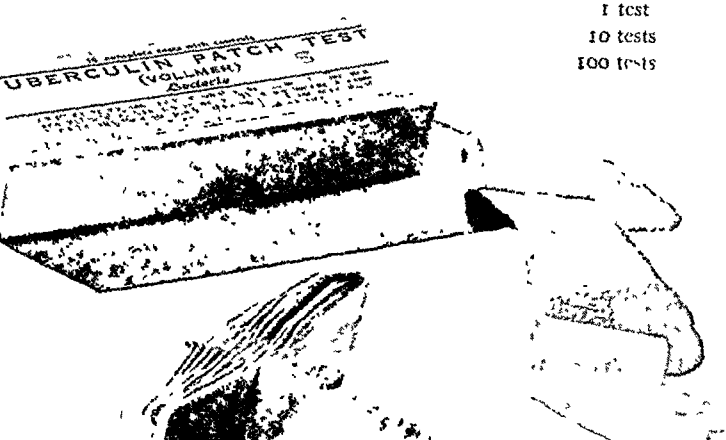
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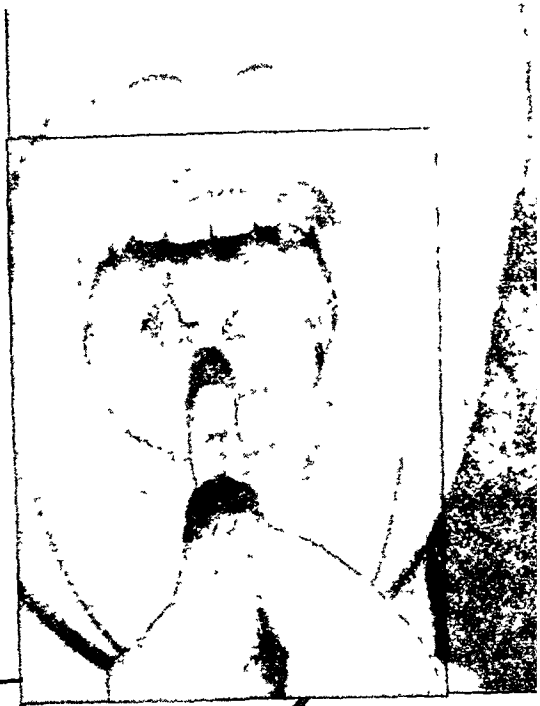
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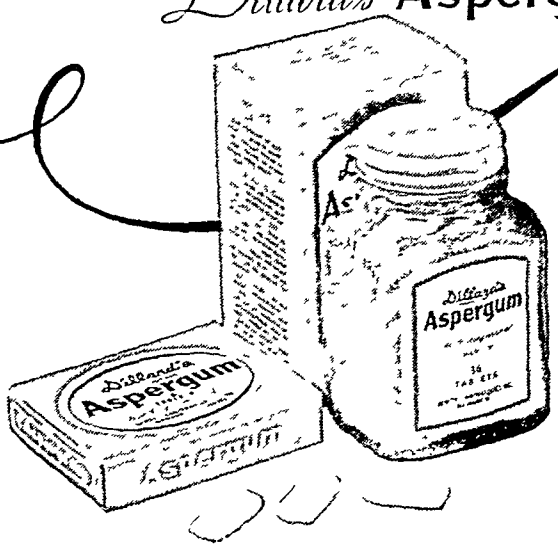
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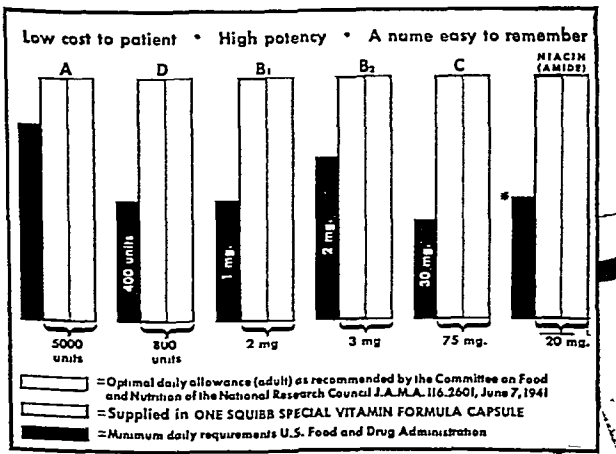
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[1] Spies, T. D. *M. Clin. North America* 27 273, March 1943
[2] Jolliffe, N., and Smith, James J. *M. Clin. North America* 27.567, March 1943.
[3] Spies, T. D. *J. A. M. A.* 122 497, June 19, 1943

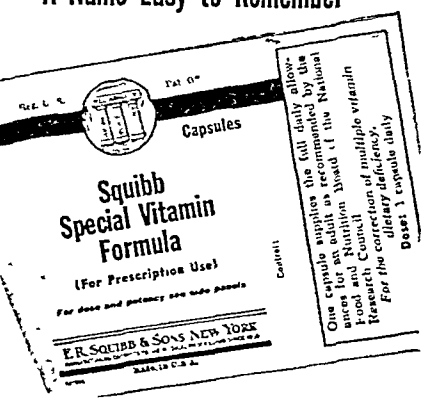
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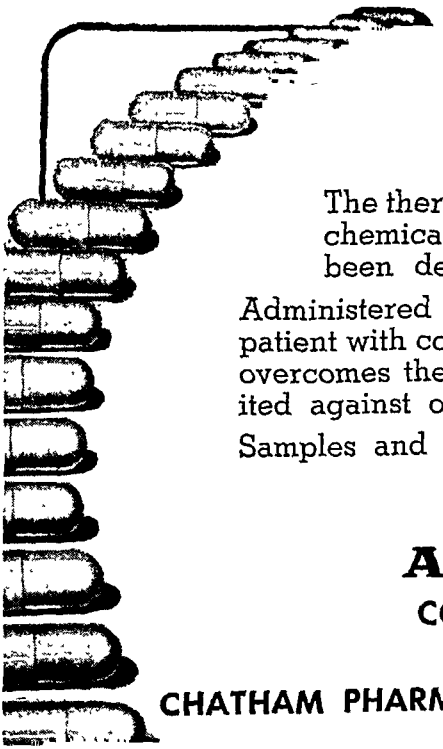
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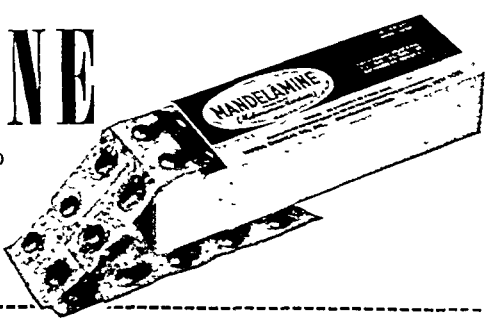
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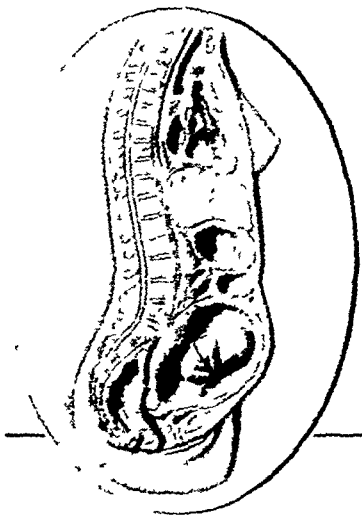
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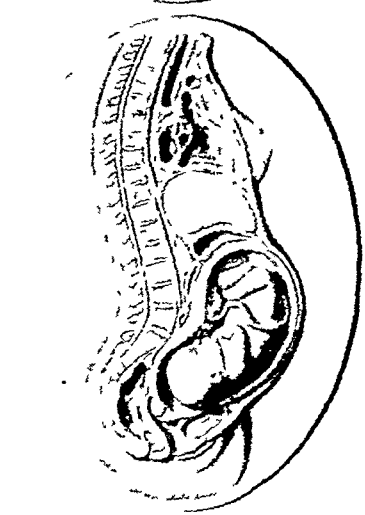
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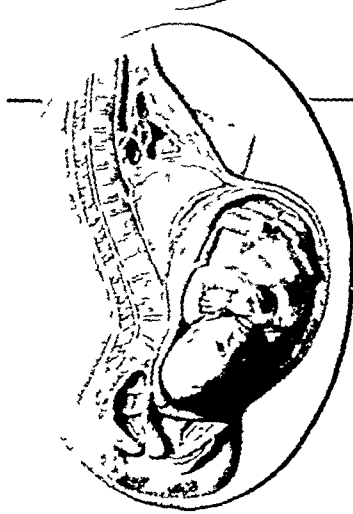
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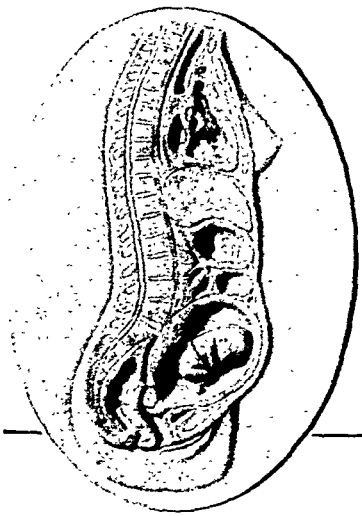
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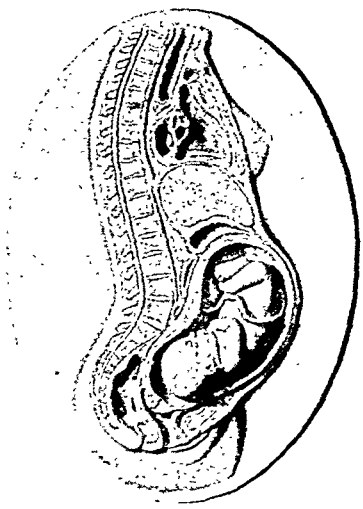
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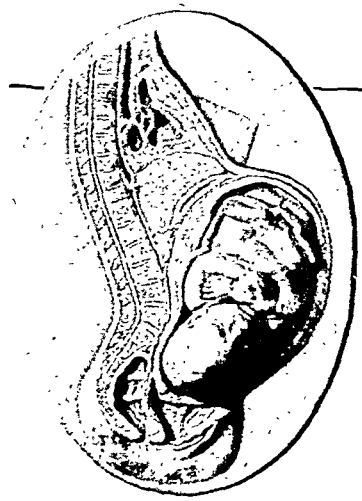
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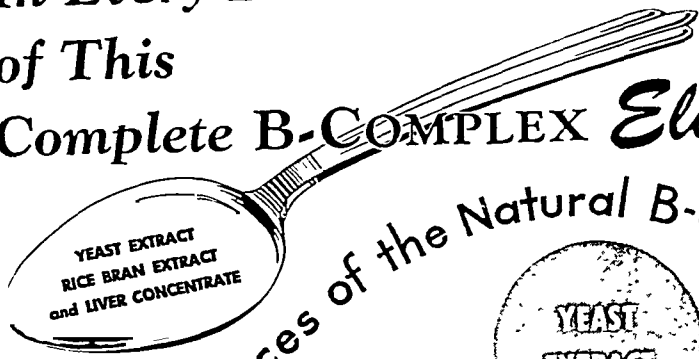
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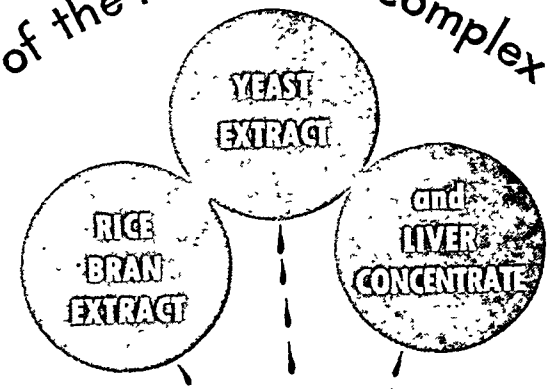
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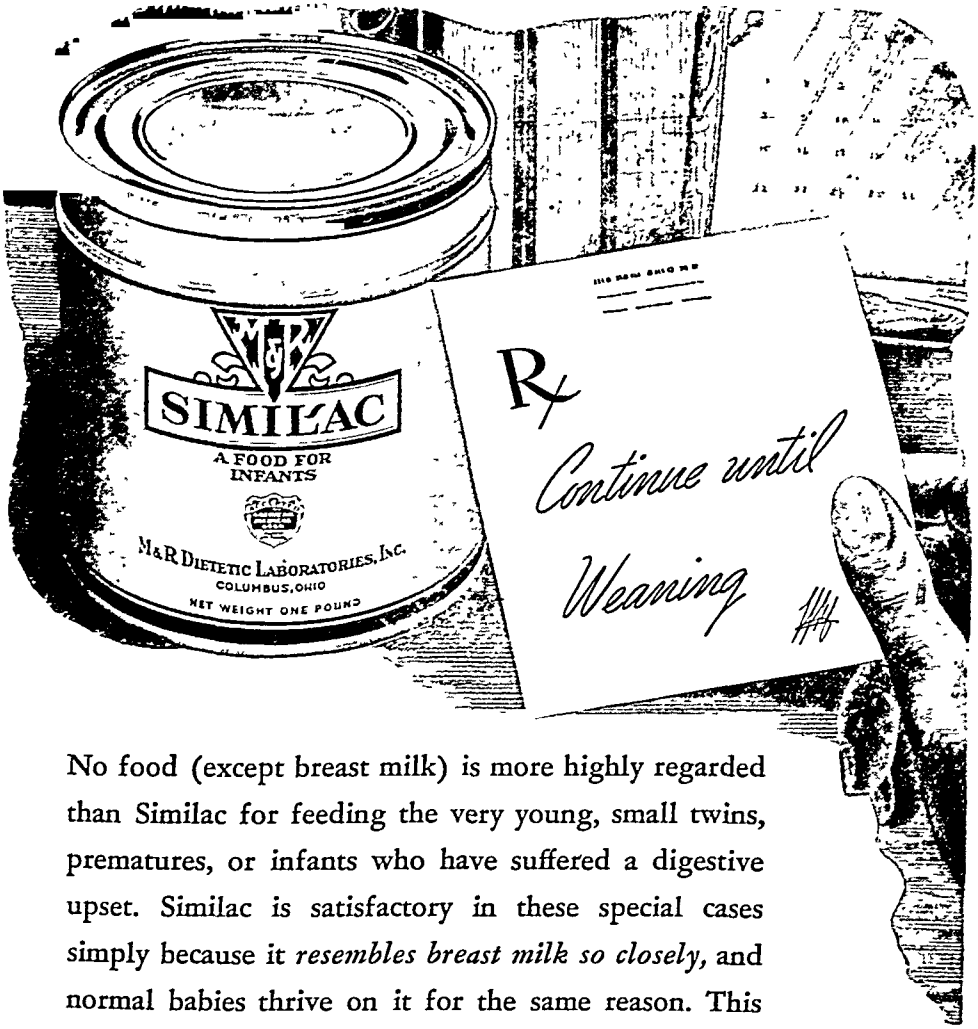
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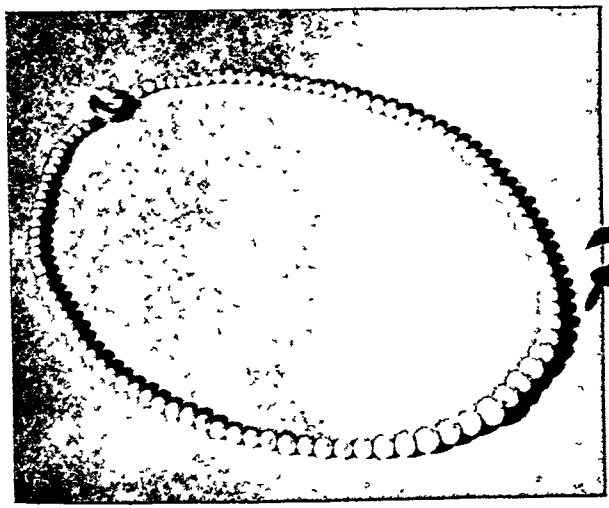
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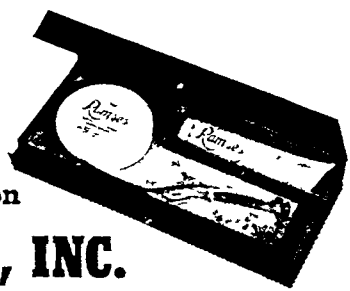
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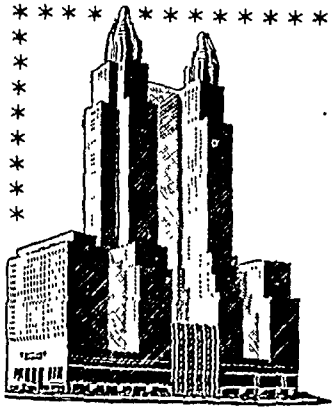


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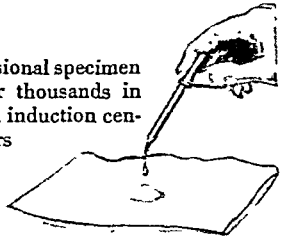
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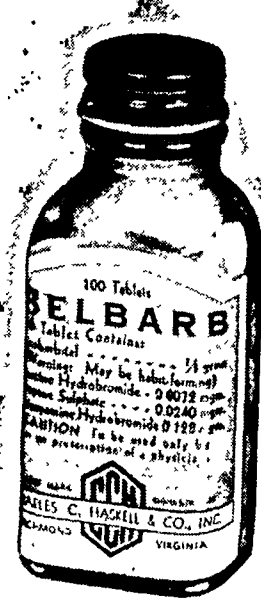
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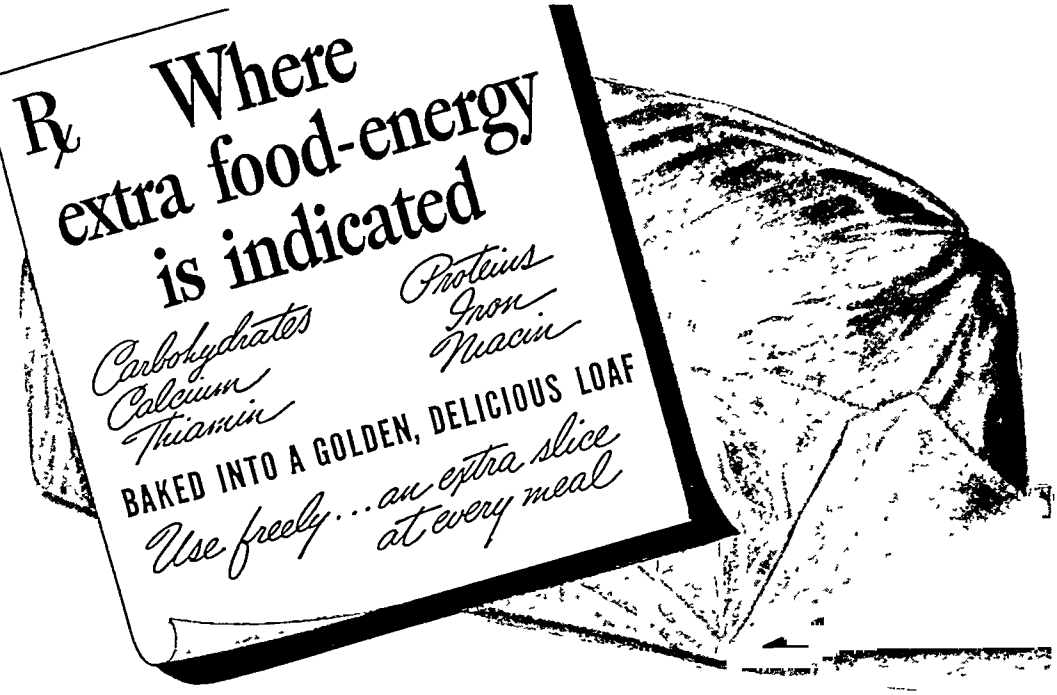
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NEW YORK STATE JOURNAL OF MEDICINE

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VOLUME 43 AUGUST 15, 1943 NUMBER 16

Editorial

More Political Medicine

Proposed changes in the structure of American medicine by numbers of groups, associations, and corporations and by legislators were examined in a recent address[1] by Thomas A. McGoldrick, M.D., L.L.D., President of the Medical Society of the State of New York. "From the beginning of the World War we have heard from very many sources of the changes that would take place at its end. Numbers of groups—of associations and corporations, as well as of individuals—have with assumed prophetic vision proclaimed the many radical changes that they desire to take place. The report of the Twentieth Century Foundation lists nearly 140 such corporations, representing vast aggregations of wealth. It would seem as if very little now existing, or existing before the war—whether tried by time or experience, whether experimental or proved by usage—is worth saving. These workers are in full accord with the English economist who said that in a time of political revolution many drastic changes could be accomplished which in normal times would be impossible. A brand New World is sought—in fact is on the way. Now no person may ever find fault with *improving* existing conditions or practices; no one *should* find fault with the adjustment of methods for betterment. No one, however, no matter how well intentioned, should cast aside knowledge we now possess or sacrifice true progress which has been made. Long years ago, Erasmus said: 'The greatest folly of which a man is capable, is to sit down with pencil and paper to plan out a new social world.'"

Yet that very thing seems to be the plan and intent of many who would remold the free institutions of American medicine along the lines proposed by Senator Wagner and his colleagues in *S.1161; H.R.2861* as set forth in the August 1, 1943, issue of the JOURNAL.[2] One must believe the proponents of such a measure to sell the civil practice of medicine into slavery and bondage to be ignorant of or willfully blind to the continuing progress and remarkable results already attained by the profession. It is true, as Dr. McGoldrick points out, that "in some areas of this country, there are not enough doctors—not enough hospitals—not a sufficient number of laboratories, though not to such a degree as has been proclaimed by interested workers. In some sections of the country, everybody has not the facilities at hand and within his means to obtain every kind of specialist, every laboratory procedure, and every instrument of precision. Everybody has not the intelligence to desire or even accept the good medicine which is available. In regions of great ignorance the superstition, the voodoo, the charm, the universal medical mixture cure—all are preferred; in other sections, we have the hundred thousands of people choosing the 'isms,' the 'pathies,' and the faith cures; many more, able to select and pay for good preventive medical or dental prophylaxis or cure, prefer and choose other ways to use

[1] Utica, New York, July 13, 1943.

[2] New York State J. Med. 43: 1399 (Aug. 1) 1943.

their money. But everybody in the United States is sharing in the effects of ever advancing medical knowledge, which has given us the lowest mortality and morbidity rates of any country in the world with comparable population.

"A few years after the close of World War I, there was announced the discovery of insulin and its wonderful value to the million diabetics in this country. Following that came the results of the studies of anemia, the elements involved in the causation of the pernicious type, the use of liver extract with other remedies. Less than ten years ago chemotherapy presented us with the sulfonamide drug, with its successive preparations and their astonishing successes. The program in blood transfusion, the technical improvements, including the preparation and the preservation of plasma, and its uses, have been real advances—have been of immense life-saving benefits multiplied over in these terrible days. When through the fortunes of war, our allied nations lost the source of the greater part of their quinine—and when the need for antimalarial remedies was greatest for our soldiers in these foreign infested lands—medicine, with the great help of the pharmaceutic industries, synthesized the atabrin or quinabrin preparations that have so effectively substituted. The general reduction in infections, such as typhoid, diphtheria, tuberculosis, the treatment of venereal disease, the lowering of the death rate in maternity cases are but some illustrations of progress within these past twenty-five years. The value to the nation and to the individuals therein of the medical progress we have made is rarely mentioned—generally is not known. In Social Security plans the importance of the lives saved and the improvement of individual good health in preventing unemployment, in reducing absenteeism, in increasing income, in prolonging life in an earning capacity, in the shortened period for old-age pensions, is rarely properly appraised.

"The doctors were the earliest in the groups of real social workers. Besides being the possessors of ever increasing knowledge, they were the originators, the prompters, the inaugurators, and early directing guides of every hospital, every clinic in our land, and in their long-continued, unremunerated services have been the principal contributors and supporters of these institutions."

It is now proposed to sell these medical men who have initiated and accomplished all these things into a house of bondage, into a kind of economic and professional slavery to the Surgeon General of the United States Public Health Service.

If the people of the United States really want that to be done, it can be done, for better or worse. We believe, however, that if they are fully informed of the proposal and its probable consequences, the people will have in remembrance the accomplishments of a free, progressive, and liberal profession and will instruct their representatives to accord *S.1161; H.R.2861* the scant consideration they deserve.

The situation is serious. The medical profession is obligated to see to it that the people are fully informed of what is proposed and what such a proposal will mean to them.

The people will, in the final analysis, decide the issue.

Procurement of Physicians from New York State

In the June 15, 1943, issue of the JOURNAL, we asked of the A.M.A., what are the facts relating to the procurement of physicians in this State? Certain discrepancies seemed to exist in the figures at the disposal of the War Participation Committee of the Medical Society of the State of New York, and those published by the *J.A.M.A.*

Answering our editorial inquiry, the *J.A.M.A.*, says:

> "The official records of the Procurement and Assignment Service are derived from the Adjutant General of the U.S. Army, the Surgeon General of the U.S. Navy, and the Surgeon General of the United States Public Health Service. Careful tabulations are made from the official lists

after the individual physicians' names have been verified against known records. On January 31, 1943, there were 7,460 physicians on duty with the armed forces from the State of New York, while on March 31, 1943, there were 7,676 physicians on duty from that state. During the months of February and March, 1,035 were called to duty from the entire country. Each name credited by the Procurement and Assignment Service represents a physician who left a civilian practice and reported for duty with the armed forces. The discrepancy between the figures cited is doubtless due to the difference between the number of physicians who signified their willingness to serve their country in the armed services and the number actually commissioned and on duty."[1]

[1] J.A.M.A. 122: 749 (July 10) 1943.

Doubtless. However, the number commissioned was the basis for the statement that New York quotas had not been met. It is still a little difficult to see what a physician can do who has signified his willingness to serve his country in the armed services and whose commission is not forthcoming so that he may be ordered to active duty. It strikes us as not quite sporting that New York physicians in this predicament should be made whipping boys because of delays in processing, delays over which they could have no possible control. And that's that; let's get on with the war.

Abuse of Sulfonamides

On May 6, 1943, the Section on Dermatology and Syphilology at the Annual Meeting of the Medical Society of the State of New York passed the following resolution:

"WHEREAS, Repeated administration of sulfonamides either internally or locally may sensitize an individual to these drugs and thereby preclude their future use in serious diseases, such as pneumonia; therefore, be it

"*Resolved*, That the Section on Dermatology and Syphilology go on record as strongly disapproving the indiscriminate use of sulfonamide drugs in relatively harmless diseases of the skin which can be satisfactorily treated by equally efficient drugs; and be it further

"*Resolved*, That the Section condemn the use of prepared dressings containing sulfonamide drugs which are sold promiscuously to the laity."

Little can be added to the resolution, which so tersely, forcefully, and rightly condemns the indiscriminate use of sulfonamide products by physicians, manufacturers, and the public. It has not been generally appreciated, perhaps, that repeated administration of sulfonamides either locally or internally may sensitize an individual to these preparations. But as further clinical experience in their use and evidence of their abuse or misuse accumulate, a campaign of education directed to physicians, manufacturers of prepared dressings, and to the public seems indicated and should be carried out forthwith.

An additional warning may be added, according to Fisher, Accousti, and Thompson,[1] that the "rapidly growing medical use of sulfonamide powders, ointments, and solutions for topical application in superficial and deep wounds raises the question of the possibility of their becoming contaminated with pathogenic organisms not affected by the drugs." Apparently, serious contaminations do occur. Welch, Slocum, and Herrick[2] found contamination of sulfonamide dusting powders with tetanus, and the death of a patient in England has been reported[1] from tetanus following the postoperative use of powdered sulfapyridine in the abdomen.

In this issue, page 1499, David Bloom, M.D., in a paper entitled "The Danger of Cutaneous Reactions to Sulfonamides" reports two cases of bullous eruption following the use of sulfonamide and warns that in 1941 "more than 1,000,000 pounds of sulfanilamide and sulfathiazole were sold in this country, in addition to considerable amounts of sulfapyridine and sulfadiazine, and when one reflects that many thousands of lives are being saved by these drugs, the incidence of serious toxic reactions and even the several thousand fatalities known to

[1] J.A.M.A. 122: 855 (July 24) 1943.
[2] J.A.M.A. 120: 361–364 (Oct. 3) 1942.

have been produced by the drugs may seem negligible. But looking at absolute figures and considering the enormous number of individuals who have been and are unknowingly sensitized to these drugs and are potential victims of illness and death when at some future time the drug is given to them, one sees the necessity of preventing or reducing to a minimum the toxic and fatal reactions of the sulfonamides."

In the public interest this information should be widely and quickly disseminated.

Prize Essays

The Merrit H. Cash Prize and the Lucien Howe Prize will be open for competition at the next Annual Meeting of the Medical Society of the State of New York.

The Lucien Howe Prize of $100 will be presented for the best original contribution on some branch of surgery, preferably ophthalmology. The author need not be a member of the Medical Society of the State of New York.

The Merrit H. Cash Prize of $100 will be given to the author of the best original essay on some medical or surgical subject. Competition is limited to the members of the Medical Society of the State of New York, who at the time of the competition are residents of New York State.

The following conditions must be observed:

Essays shall be typewritten or printed with the name of the Prize for which the essay is submitted, and the only means of identification of the author shall be a motto or other device. The essay shall be accompanied by a sealed envelope having on the outside the same motto or device and containing the name and address of the writer.

If the Committee considers that no essay or contribution is worthy of a prize, it will not be awarded.

Any essay that may win a prize automatically becomes the property of the Medical Society of the State of New York "to be published as it may direct."

All essays must be presented not later than February 1, 1944, and sent to the Chairman of the Committee on Prize Essays of the Medical Society of the State of New York, 292 Madison Avenue, New York 17, New York.

CHAS. GORDON HEYD, M.D., *Chairman*

Committee on Prize Essays

THE DANGER OF CUTANEOUS REACTIONS TO SULFONAMIDES

Report of Two Cases of Bullous Eruption Following the Use of Sulfanilamide, One of Which Resembled Pemphigus Vulgaris

DAVID BLOOM, M.D., New York City

THE introduction of the sulfonamide drugs into the practice of medicine has unquestionably proved itself one of the most important milestones in the progress of therapy. Mortality has been reduced considerably in serious illnesses like meningitis, pneumonia, septic streptococcic infections, and wound infections on the battlefield, and morbidity has been shortened in many other diseases, such as gonorrhea, chancroid, and lymphogranuloma venereum.

But it is important to realize that these drugs, which are able to interfere so successfully with bacterial life and activity, are also potentially dangerous to the physiologic life of the cells of the human host. Thus, there have been observed toxic by-effects of these drugs which do not spare any organ of the body, affecting several of the organ systems simultaneously or disturbing them singly. The most dreaded of these effects are those that involve the hemopoietic system, leading to agranulocytosis or acute hemolytic anemia, and renal involvement, which may consist in parenchymatous damage or in obstruction of the urinary tract by crystals. The liver, the central and peripheral nervous system, the heart, the joints, and the skin may be affected. When these reactions are not closely watched or are ignored and the administration of the drug is continued, reactions which are mild may become severe and may even result in death. The exact incidence of fatalities produced by the sulfonamide drugs themselves is unknown. According to Long,[1] 200 such fatal cases have been reported. But this author rightly assumes that the actual incidence of mortality from this cause must be almost 5,000, for most cases are not reported.

In this paper I must confine myself to the by-effects of sulfonamides on the skin. I wish to emphasize here a fact that is not sufficiently known and considered by the nondermatologist—namely, that just as the hemopoietic system, the kidneys, and other organs may be affected both primarily and singly and may produce serious illness, so the cutaneous organ may also be affected alone, without necessarily being associated with a disturbance of any of the viscera or body systems. Interference with the physiologic functions of the skin may in itself lead to serious illness or death. Thus, in the patient reported by Weinstein and Domm[2] who died with exfoliative dermatitis after the ingestion of sulfanilamide, the autopsy did not reveal any satisfactory cause of death, and it had to be assumed that death was due to overwhelming toxemia produced by the drug. Also, the 3 cases of dermatitis found by Sutliff and his associates[3] among the 28 probable sulfonamide deaths in the records of the Pneumonia Control Division of New York City Department of Health, the Bureau of Vital Records and Statistics, and of the Chief Medical Examiner's Office, most probably died of the skin involvement. Two of these patients had generalized dermatitis which followed sulfathiazole therapy, and the third was one of exfoliative dermatitis which developed after the administration of sulfapyridine.

Like any drug reaction, these eruptions may be produced by different mechanisms (Sulzberger;[4] Greenwood[5]):

1. They may be primarily toxic effects, caused by some unknown weakness in the cells of the individual or in the detoxifying mechanism; in other cases they may be caused by the overwhelming effect of an excessive amount of the drug or its too prolonged administration. It has been observed that such a toxic eruption, after having cleared up, may not recur on readministration of smaller doses of the drug (Tedder[6]).

2. Another group of eruptions forming probably the majority of skin reactions to sulfonamides is of allergic nature, produced by acquired hypersensitivity of the skin, which may develop after ingestion even of small amounts of the drug. Characteristic of this type of reaction is the short interval between the readministration of the drug and the appearance of the eruption. It takes, according to Abramowitz[7] and others, at least seven days for the skin to become sensitized; therefore, the interval between the time of ingestion of the first dose of the drug and that of its readministration must be at least seven days in order that the allergic reaction manifest itself. When the drug administration is not interrupted but is continued during several weeks, the eruption may appear any time after seven days of drug therapy.

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 6, 1943

From the Department of Dermatology and Syphilology of the Sydenham Hospital, New York City.

3. The third type of mechanism is the so-called allergo-toxic, forming a combination of toxic and allergic effects. Not infrequently, when a reaction appears during a prolonged first course of the drug administration, it is difficult to distinguish between the two mechanisms and to evaluate the exact role played by the primary toxic and by the allergic mechanism (Spink[8]). For the toxic effect may be superimposed by gradual sensitization.

It has been observed that some of the early eruptions are precipitated by exposure to sun light (Newman and Sharlit[9]). According to Tedder,[6] this type of eruption is not necessarily associated with sensitivity to the drug. According to Combes and Canizares,[10] sunray sensitivity is not common following sulfanilamide administration.

Types of Sulfonamide Eruptions

The most frequent eruption observed, particularly during the first course of sulfonamide therapy, is the maculopapular, or morbilliform, type. The other types of eruption are scarlatiniform, erythema multiforme-like, urticarial, angioneurotic edema, erythema nodosum, purpuric, varioliform (Franks and Traub[11]), vesicular, pustular, which may be also follicular (Miller[12]), bullous (Omens and Robbins;[13] Bettley;[14] Epstein[15]), fixed bullous (Loveman and Simon[16]), exfoliative (Weinstein and Domm;[2] Sutliff and associates[3]), and pemphigus foliaceus-like (Wien and Lieberthal[17]).

The morbilliform and scarlatiniform eruptions may be mistaken for measles and scarlet fever. The erythema nodosum-like eruption has been mostly observed in the course of sulfathiazole therapy, but it has also been reported following sulfanilamide[16] and sulfadiazine (Costello[18]). Angioneurotic edema may seriously endanger the life of the patient when it involves the glottis. Such a case was reported by Schonberg,[19] and was also observed by the author, at the Skin and Cancer Unit, in a woman who had taken 1 Gm. of sulfathiazole. The patient had received, one month previously, 2 Gm. of sulfathiazole daily for four days, a course that was repeated later. This case was presented at the Manhattan Dermatological Society by Abramowitz.[20] In the case of Dennie[21] there was edema of the face, the upper extremities, and the tongue. A follicular pustular eruption of the extremities was observed by the author at the Skin and Cancer Unit in a man who had received, for the treatment of conjunctivitis, sulfathiazole simultaneously in the form of drops and ointment for local application, and tablets for oral use.

In association with the eruption on the skin there may be involvement of the mucous membranes of the mouth and of the conjunctivae and sclerae. Conjunctivitis and scleritis, which are limited to the exposed part of the bulbar conjunctiva and sclera, have been observed most frequently following sulfathiazole therapy and were reported among others by Haviland and Long[22] and by Volini, Levitt, and O'Neil.[23] In Costello's[18] series of cases treated with sulfathiazole, 5 per cent developed conjunctivitis. Costello describes the appearance of the eyes in this condition as bloodshot.

Several cases of bullous eruption following sulfanilamide and sulfapyridine therapy were reported. The patient of Loveman and Simon[16] developed, on readministration of sulfanilamide, bullae in the same areas of the skin and in the mouth as on the first administration of the drug. While these patients have recovered promptly after discontinuance of the medication, the patients reported by Wien and Lieberthal[17] did not recover. Nine days after the commencement of sulfanilamide therapy for otitis media and mastoiditis, this patient developed a morbilliform eruption, which was followed a few weeks later by a malodorous dermatitis exfoliativa and by bullae scattered over the body. He continued to be ill and to have fever and died six months after the appearance of the eruption. An autopsy revealed tuberculous tracheobronchial lymph nodes, brown atrophy of the heart, and hematoma of the liver.

Besides the frequent complaint of severe pruritus, there is associated in the majority of eruptions, preceding or accompanying them, elevation of temperature, which may rise to as high as 106 F. Like the eruption, this so-called drug fever usually appears after the seventh day of sulfonamide therapy. Drug fever, being in most cases a sensitization phenomenon, develops rapidly after readministration of the drug.

Incidence of Skin Eruptions

Although there is agreement among investigators about the fact that cutaneous reactions are produced most frequently by sulfathiazole and least frequently by sulfadiazine, all the sulfonamide compounds have been observed to cause serious reactions and even death. Among 500 patients treated with sulfa drugs, Dowling and Lepper[24] have noted the following incidence of dermatitis, fever, and/or conjunctivitis: from sulfathiazole, 6.2 per cent; from sulfapyridine, 2.4 per cent; from sulfadiazine, 2 per cent. Long[1] has observed in a large series of patients the following incidence of eruptions: following sulfathiazole therapy, 5.2 per cent; sulfanilamide, 2.2 per cent; sulfapyridine, 2 per cent; and sulfadiazine, 1.3 per cent. In

the course of sulfathiazole therapy, Volini and associates[23] found cutaneous reactions in 3.8 per cent, and Weinstein and Domm[2] in 3.7 per cent of the patients. Park and Platts[25] have found the incidence of eruptions following sulfanilamide therapy to be 4.3 per cent, that following sulfapyridine, 1.9 per cent. Costello[18] observed skin eruptions in 10 per cent of the cases in his series which were treated with sulfathiazole.

These figures, however, refer mostly to series of individuals receiving their first course of sulfonamide therapy. Analyses of large groups of patients who are following a second or third course of treatment with the drugs would reveal a very much higher incidence of cutaneous reactions, for the sulfonamides sensitize a high percentage of persons. Drug fever, because it is a sensitization phenomenon, may serve as an indication for the approximate incidence of cutaneous sensitization. Thus Lyons and Balberor[26] have found among 53 patients who had tolerated the first course of sulfathiazole, consisting of an initial dose of 4 Gm. followed by 1 Gm. every four hours during a period on an average of 5⅘ days, 19 patients—i.e., 36 per cent—who developed severe fever reaction during the second course of the drug therapy.

While the eruption and the drug fever, which appear for the first time early in the course of sulfonamide therapy, are usually mild and disappear rapidly if the drug administration is discontinued, it should be noted that the sensitization reaction, which takes place when the drug is continued or is readministered after a certain interval, is fraught with danger. The eruption which reappears at this period may be much more severe in character and may be associated with other serious by-effects like acute hemolytic anemia or agranulocytosis. Thus in the case reported by Weinstein and Domm[2] the patient, who in the presence of a macular rash had received by an oversight an additional 4 Gm. of sulfathiazole, developed within twenty-four hours a vesicular, bullous, and exfoliative dermatitis which led to death within a few days.

It should be known that sensitization of the skin and other organs takes place not only by oral administration of the sulfa drugs but also by local external application in the form of ointments. Cohen, Thomas, and Kalisch,[27] Miller,[12] and Livingood and Pillsbury[28] have reported cutaneous sensitization following application of sulfathiazole ointment to the skin. They all warn against the use of these drugs in minor conditions. For should the patient become sensitized it will be impossible for him to benefit from the sulfa drugs at some future time when he may be afflicted with serious illness.

Thus drug fever and eruption have to be considered as danger signals. They may indicate sensitivity of the skin to the sulfonamides or they may be forerunners of other serious toxic reactions like agranulocytosis. Irving,[29] pointing out this fact, demands from medical insurance companies great interest in this question of sulfa-drug sensitization.

It is of important interest whether ingestion of one sulfa drug sensitizes the patient to the other sulfonamide compounds also. This is impossible to predict as it varies in different individuals. The 2 cases of Haviland and Long,[22] in whom sulfathiazole therapy had to be interrupted because of a maculopapular eruption in one and urticaria in the other, showed exacerbation of these eruptions when sulfapyridine was given. Among the series of cases investigated by Costello[18] one patient who reacted with a diffuse erythematous eruption following sulfathiazole therapy developed erythema nodosum when sulfadiazine was substituted. In the report of Lyons and Balberor,[26] 5 patients who developed drug fever following sulfathiazole tolerated sulfapyridine and sulfanilamide without any reaction.

Case Reports

Case 1.—W. M., a colored boy aged 14, was admitted to Sydenham Hospital on February 3, 1942, with a generalized pruritic eruption of three days' duration. Past and family history were negative, particularly in regard to hay fever, asthma, or any allergic cutaneous manifestations.

Present history: One month previously the patient had contracted gonorrheal urethritis for which he had received since January 8, 1942, sulfanilamide by mouth. During the first two weeks 0.5 Gm. of the drug was administered four times daily and during the next eleven days three times daily. Thus he received a total of 45 Gm. of sulfanilamide within twenty-five days.

On February 1, two days before admission to the hospital and twenty-three days after the commencement of sulfanilamide therapy, the patient noticed swelling of the upper lip and some pruritic lesions on the left wrist which were soon followed by a generalized pruritic eruption. After the appearance of the eruption, the boy still continued to take sulfanilamide for two more days.

Examination: On admission to the hospital the patient appeared desperately ill. His temperature was 104 F., pulse 90, respiration 40, and the blood pressure 116 systolic by 70 diastolic. The heart and lungs were normal. There was no enlargement of the liver and spleen and no other abdominal abnormality. Except for submaxillary adenitis, no other lymph glands were palpable.

The skin presented a universal eruption of lentil- to pea-sized flat papules and occasional vesicles,

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SYDENHAM HOSPITAL
NEW YORK CITY

No.....

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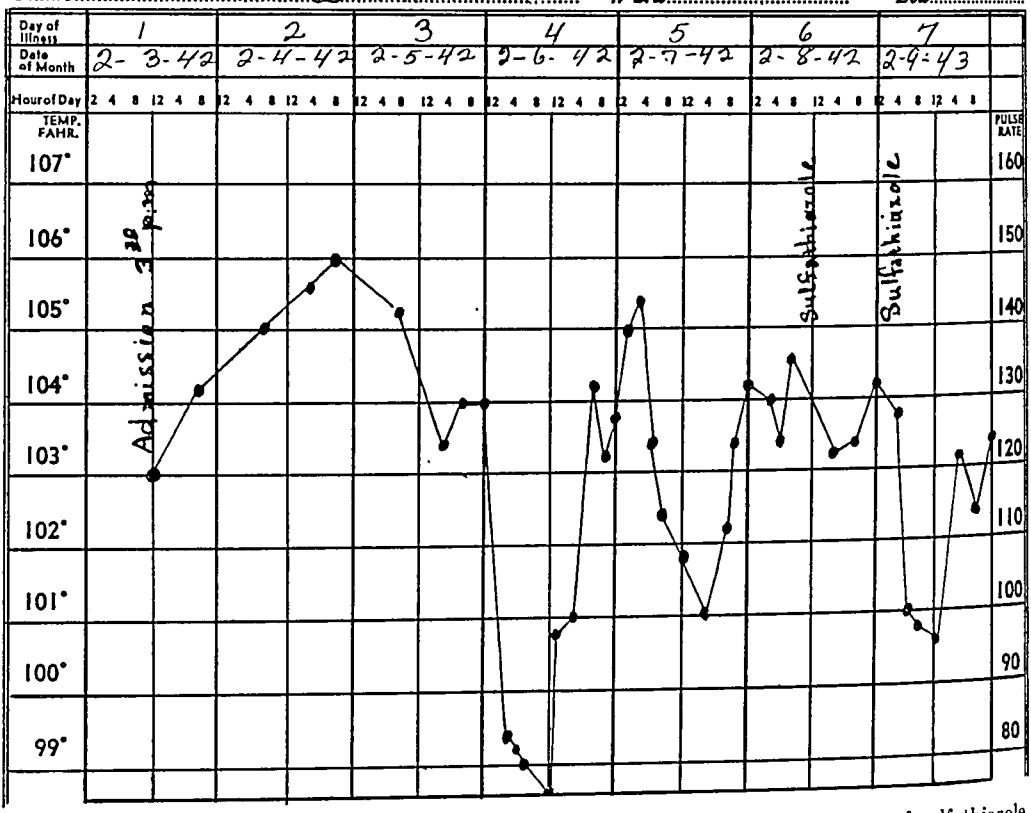


CHART I. Case 1. Drug fever from sulfanilamide. Not aggravated by administration of sulfathiazole.

which involved most profusely the face and extensor surface of the upper extremities, particularly of the hands. The mucous membranes of the mouth showed a profuse eruption of vesicles and were covered with exudate. The conjunctivae were chemotic, and the corneae appeared hazy. There was considerable discharge from the eyes. A diagnosis of dermatitis medicamentosa due to sulfanilamide was made.

Laboratory examination showed a normal urine. The blood count was 4,000,000 erythrocytes and 11,000 leukocytes; the hemoglobin content was 78 per cent (13.3 Gm.). The differential count showed 25 per cent neutrophil bands, 61 segmented neutrophils, 5 lymphocytes, and 7 per cent monocytes. The blood level of sulfanilamide was 0.8 mg. per cent. The blood chemistry showed 15.8 mg. per cent urea nitrogen, 503 chlorides, 153 cholesterol, and 56 mg. per cent cholesterol esters. The icteric index was 6; carbon dioxide (volume, per cent) was 43. The blood culture was sterile. The flocculation tests for syphilis were normal.

Course of illness: During the next few days the condition of the patient became steadily worse. The temperature rose on February 4 to 106 F. and dropped slightly on February 5 (Chart 1). On this day the pulse became weak and irregular and the respiration rapid, but the blood pressure was maintained. The patient first appeared stuporous, then became delirious. The skin lesions changed to vesicles and bullae, which became confluent. The eyes, nose, mouth, and lips produced bloody discharge and were covered with bloody crusts (Fig. 1). The nostrils were clogged. The breathing was rattling. Ophthalmologic examination by Dr. Kronenberg revealed denudation of the epithelium of the conjunctivae in many areas, cloudiness of the corneae, and loss of some of the corneal epithelium.

Following intravenous infusion of a saline solution of glucose, administration of oxygen, and other treatment, the condition of the patient improved slightly. On the next day, February 6, the temperature fell to normal, and the general condition

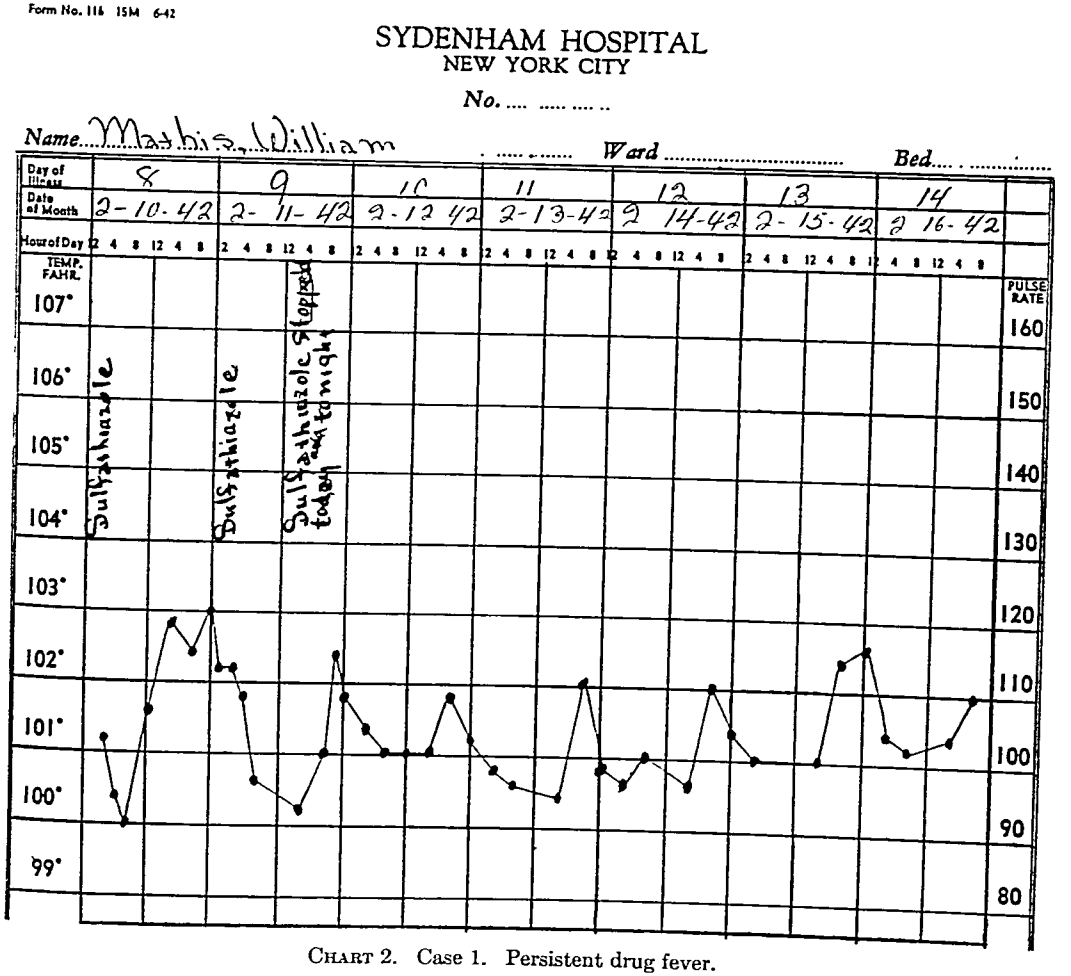


CHART 2. Case 1. Persistent drug fever.

improved rapidly. The skin lesions assumed more and more a vesicular and bullous type. Examination of serum from a bulla showed a trace of sulfanilamide.

On February 7, however, the temperature rose again to 105.4 F., and the patient became irrational and could not be controlled by hypnotics or sedatives. The throat became clogged with mucus. At times Cheyne-Stokes breathing was present. The bullous lesions of the skin became confluent, broke, and exposed large areas of raw skin. On the following day the temperature dropped somewhat but continued to be spiking during the next few days, reaching a maximum of 103 to 104 F. Because of the continuous septic type of temperature, the internist considered the possibility of some superimposed bacterial infection, in spite of the negative blood cultures and the normal roentgenograms of the chest. He advised, therefore, the administration of sulfathiazole orally with an initial dose of 2 Gm., followed by 1 Gm. every four hours. The temperature, however, continued to be of septic type, varying between 100.6 F. in the morning and 103.4 F. in the evening on February 9, and between 100 and 103 F. on February 10 (Chart 2). On the third day of sulfathiazole therapy the blood level of the drug was 2.5 mg. per cent. After the administration of a total of 23 Gm. of sulfathiazole, the drug was discontinued on the fourth day. The temperature continued to vary between 100, 101, and 102 F. The patient's general condition, however, as well as that of his skin, gradually improved. On February 15, the skin started to exfoliate, like that of dermatitis exfoliativa. On February 20, the morning temperature became normal, but the evening temperature continued to be above normal until March 8, 1942.

Among the different laboratory examinations carried out during the illness of the patient the following abnormal data were noted: On February 9 the urine showed marked albuminuria and a small amount of urobilinogen. On the same day the blood examination revealed a hemoglobin content of 66 per cent (11.3 Gm.) and 3,440,000 erythrocytes, and on March 9 similar figures were obtained. On one occasion there were 3 per cent neutrophil



FIG. 1. Case 1. Vesiculobullous eruption involving the mouth, nose, and eyes.

myelocytes and 3 per cent metamyelocytes. On another occasion 6 per cent eosinophils were noted. Dr. Jacob Heiman called attention to the variation in the figures for cholesterol and esters of the blood, which on February 5 were 153 and 43 mg. per cent, respectively, and on February 10, 122 and 38, while on March 9, the figure for cholesterol rose to 199 and that for cholesterol esters to 83 mg. per cent.

On March 16, after an illness of more than six weeks, the patient was discharged from the hospital in a fairly good general condition. The skin presented a generalized eruption of hyperpigmented macules which persisted when he was seen many months later, and a large plaque of depigmentation with some keloidal formation on the dorsum of his left hand.*

SUMMARY AND COMMENT ON CASE 1

The essential facts in the history of this case may be summarized as follows: A boy, aged 14, developed a pruritic eruption following ingestion of more than 40 Gm. of sulfanilamide which he had received during a period of three and a half weeks for the treatment of gonorrheal urethritis. He continued to take the drug for two more days after the appearance of the eruption. The eruption, which was first papular, became universal, changed to a vesicular and bullous form, and involved the mucous membranes of the mouth and nose, and also the conjunctivae, sclerae, and corneae. It was associated with high fever of septic type which persisted for about thirty-five days. The patient was gravely ill during the first nine days of his stay in the hospital, was delirious, and showed signs of severe intoxication. On thorough investigation no other objective changes could be found which might have been responsible for the severe illness except the cutaneous involvement, associated possibly with the effect of the drug on the central nervous system. However, in the belief that there might nevertheless be a superimposed bacterial infection, sulfathiazole was administered, during a period of several days, in the total amount of 23 Gm., but the septic type of fever continued for more than a month.

It is evident that the gradual improvement in the condition of the patient was not due to the sulfathiazole therapy but rather came about in spite of the treatment. However, the fact that the patient did not become worse following the administration of sulfathiazole indicates that the previous ingestion of sulfanilamide had produced sensitization only to this compound and not to sulfathiazole.

The fact that soon after the development of the reaction the blood level of sulfanilamide was only 0.8 mg. per cent probably indicates that we are dealing here with an allergic phenomenon rather than with a purely toxic effect of the drug.

It is not improbable that the serious cutaneous eruption and the illness of the patient could have been prevented, or at least their severity reduced, if the patient had been observed more closely and the administration of the drug had been stopped immediately at the first appearance of the reaction. It has also to be seriously considered whether this prolonged period of treatment of gonorrheal urethritis is not unwise, instead of the shorter period of from five to ten days advised by the Department of Health of the City of New York.

Case 2.†—R. P., an American woman, aged 47, a nurse, developed on September 3, 1942, a generalized bullous eruption while recuperating at Sydenham Hospital from an operation for a hernia of the abdominal wall.

Past history: There was a past history of numerous operations performed on the patient: at the age of 20, appendectomy; four years later, tonsillectomy; at the age of 27, myomectomy of the uterus; and seven years before, hysterectomy. Six years previously the patient had received a series of deep x-ray exposures to the ovaries because of a persistent mastitis of one year's duration. For the past six years she had been suffering on and off from furunculosis.

* The patient was presented by the author at the Bronx Dermatological Society on March 26, 1942. (Arch. Dermat. & Syph. 46: 161 (Sept.) 1942.)

† The patient was presented before the Manhattan Dermatological Society in February, 1943. (Presentation and discussion to be published in the *Archives of Dermatology and Syphilology.*)

Present history: On July 22, 1942, the patient applied a 10 per cent sulfathiazole ointment to one of the furuncles on her thigh. Several days later she noticed small bullae on the left eyelid, on and inside the nose, and in the mouth. On August 3, a carbuncle on the back of the neck was incised by the surgeon and some powder inserted into the wound. Several new bullae, which were flaccid or broken, appeared on the face. These lesions were diagnosed as bullous impetigo and cleared up under the use of ammoniated mercury ointment.

On August 17, 1942, the patient was operated on at Sydenham Hospital for an incisional hernia of the abdominal wall, at the end of which operation sulfanilamide powder was deposited into the wound before the skin was closed.

The patient was recuperating satisfactorily from the operation until August 29, when she applied a 10 per cent sulfathiazole ointment to a sore on the mucous membrane of the nose. On the following day a few bullae appeared on the back of her neck, and later the skin around the left eye became edematous and developed a few pea-sized bullae which soon broke and resembled pyodermic lesions. A 5 per cent sulfathiazole ointment was prescribed, but soon its use was discontinued, for the patient developed new bullae not only on the eyelids and the face but also on the mucous membrane of the mouth, in the perianal region, and on the abdomen, where the bullae were arranged in the form of a chain along the incisional scar. The eruption was associated with severe pruritus. A diagnosis of dermatitis medicamentosa due to sulfathiazole or and sulfanilamide was then made.

Course of illness: During her stay in the hospital, until December 12, 1942, the patient frequently developed new crops of bullae, which appeared on normal skin and involved the face, the trunk, the axillas, the groins, the anus and vulva, the palms and soles, the back of the hands and feet, the forearms and legs, the elbows, the scalp, and the mucous membranes of the mouth (Fig. 2). Most frequently the appearance of new lesions was preceded by severe pruritus. On several occasions numerous nonpruritic, slightly raised erythematous macules and plaques, of one inch in diameter, appeared on her trunk, which looked like lesions of erythema multiforme. Her temperature varied between normal, 100 F., and 101 F. This slight rise in temperature was associated with considerable weakness, which has gradually improved following blood transfusions, injections of liver extract, calcium gluconate, autohemotherapy, and sodium arsenate.

On December 12, the patient was discharged from the hospital as improved, but she has continued to be under my observation. During the five months after she left the hospital, the patient gained considerably in strength following numerous blood transfusions and administration of sodium arsenate, liver extract, and iron. However, the eruption of crops of bullae continued to appear frequently. Although in diminished number, the bullae caused great discomfort, for they were located particularly on her feet and soles, causing great difficulty in walking. Her feet and the mucous membranes of her mouth are hardly ever free of bullae. Some of the bullae contain clear fluid; others are hemorrhagic, and their size varies between $\frac{1}{2}$ inch and 3 inches in diameter (Figs. 3 and 4). The trunk shows only at rare occasions unbroken bullae, for the lesions consist mostly of crusts and areas denuded of skin. In place of previous lesions, there are erythematous macules which show atrophy and milia. The evening temperature of the patient has frequently been 100.5 F.



FIG. 2. Case 2. Showing broken bullae and erythematous atrophic spots left from previous lesions, three months after beginning of eruption.

Laboratory examination: The blood count revealed on numerous occasions a moderate diminution in the number of erythrocytes and in hemoglobin content, while the leukocytes showed a moderate increase in number, and the differential count was about normal. The urine examination gave normal findings except for an increased urobilinogen content on one occasion. The blood chemistry examination showed a normal content of cholesterol, cholesterol esters, sugar, nonprotein nitrogen, and sodium chloride. The icterus index was 6.1.

A few days after the appearance of the generalized eruption, the blood serum showed a trace of sulfanilamide, but none was found in the serum from the bullae. The phytopharmacologic test of the serum was reported by Dr. David I. Macht as nontoxic—i.e., acting as normal blood serum. The phytotoxic index was 71 per cent.

Recently a patch test was made on the skin of the back with a saturated solution of sulfanilamide, and

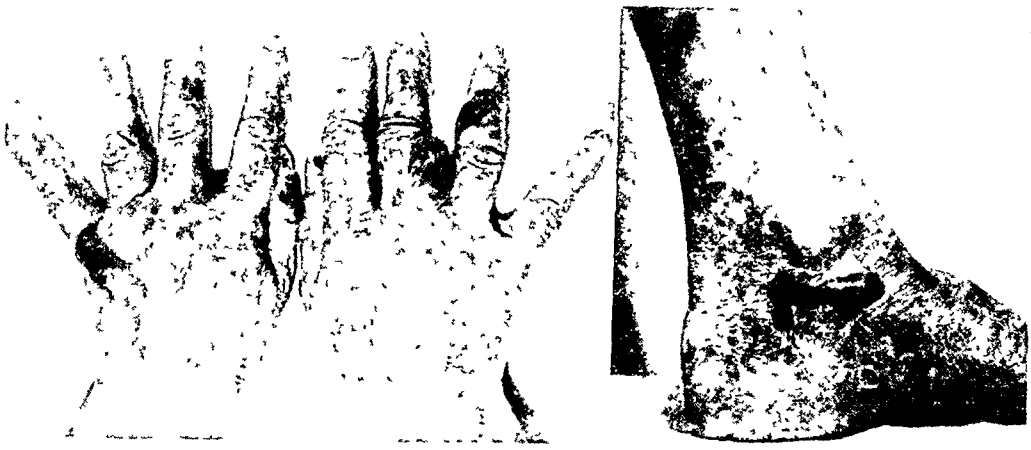


FIG. 3 Case 2. Showing large bullae and healed lesions, seven months after beginning of eruption
FIG. 4. Case 2. Showing large hemorrhagic bulla and numerous small bullae, seven months after beginning of illness.

twenty-four hours later a similar test was made with a saturated solution of sulfathiazole and a 5 per cent sulfathiazole ointment. There was no local reaction to these solutions or to the ointment. But about twelve hours after the application of sulfathiazole, a generalized pruritus developed, followed several hours later by an eruption of many bullae, particularly on the legs. A patch test with a 30 per cent potassium iodide ointment gave a negative result.

The easy separation of the epidermis following removal of adhesive from the patient's back as well as the fact that her feet when exposed to mechanical injury are particularly vulnerable indicate the presence of a modified Nikolsky sign.

COMMENT ON CASE 2

It is not certain whether the generalized bullous eruption which has persisted for eight months is due to cutaneous sensitization to sulfathiazole or sulfanilamide alone or to both. The assumption of a causative relation between the deposition of sulfanilamide powder into the operative wound and the development of the eruption two weeks later is disturbed by the fact that the patient gives a history of development of bullae following application of sulfathiazole ointment to the skin or to the mucous membrane of the nose. Another disturbing fact is that the generalized eruption was also preceded by application of sulfathiazole ointment to the mucous membrane of the nose and the skin. The presence of cutaneous sensitization to sulfathiazole is unquestionable, as in addition to the history given by the patient the author has observed personally the development of bullae following the use of the sulfathiazole ointment There are three explanations possible for the generalized bullous eruption in this patient:

1. The eruption may be due solely to sulfathiazole sensitization which has been produced by several applications of sulfathiazole ointment to the skin or mucous membranes. The deposition of sulfanilamide powder into the operative wound is coincidental and not causative.

2. The eruption may be due to sulfanilamide toxicity or sensitization which has developed gradually because of absorption of the drug from the incisional area over a period of many days

3. The third explanation may be that the sulfathiazole sensitization has changed the skin and prepared the way for a reaction to sulfanilamide powder.

Of the three explanations of the eruption, I am inclined to favor the third one, for I believe that the sensitization to sulfathiazole, produced by repeated applications of ointments to lesions on the skin and on mucous membranes, has contributed to the generalized eruption by making sensitization to sulfanilamide possible. The chain of bullae appearing along the incisional scar at the beginning of the illness may possibly be an indication of the causative relation between the sulfanilamide powder deposited in the wound and the bullous eruption.

The persistence of the eruption as long as eight months after the use of the drug does not speak against the diagnosis of dermatitis medicamentosa. Persistence and even progression of drug eruptions are a known fact and have been observed in reactions produced by other drugs, like iodides, bromides, and arsenic. This has been brought out by Sulzberger[4] and others In the fatal case of pemphigus foliaceus reported

by Wien and Lieberthal[17] the eruption persisted for six months, resulting in death.

On clinical observation alone one would not hesitate to consider seriously the diagnosis of pemphigus vulgaris. But the history and the facts already discussed speak against this diagnosis. The normal phytotoxic test of the blood in this patient would be, according to Macht,[30] also a point in favor of the diagnosis of sulfonamide eruption rather than that of pemphigus vulgaris.

Conclusions

When one considers that in 1941, according to Long,[1] more than 1,000,000 pounds of sulfanilamide and sulfathiazole were sold in this country, in addition to considerable amounts of sulfapyridine and sulfadiazine, and when one reflects that many thousands of lives are being saved by these drugs, the incidence of serious toxic reactions and even the several thousand fatalities known to have been produced by the drugs may seem negligible. But looking at absolute figures and considering the enormous number of individuals who have been and are unknowingly sensitized to these drugs and are potential victims of illness and death when at some future time the drug is given to them, one sees the necessity of preventing or reducing to a minimum the toxic and fatal reactions of the sulfonamides.

From the above review of the cases in the literature and from the observation of the two cases reported in this paper, one may conclude that the following rules should be observed in regard to administration of sulfonamides:

1. No trivial illness should be treated with these drugs. Spraying and application of sulfonamide drugs in minor nose and throat conditions and the common use of sulfonamide ointments in all kinds of minor skin wounds and infections should be condemned. To cause sensitization from these sprays and ointments is particularly unforgivable when one considers the fact that most of these conditions respond as well or better to other harmless medication. It is shocking to know of the case of a young girl who died of sulfathiazole intoxication when this drug was used for the treatment of her acne vulgaris (Lederer and Rosenblatt[31]).

2. There is no justification for using these drugs prophylactically, in conditions like the venereal diseases, as recommended recently for the Army by Loveless and Denton,[32] for this prophylactic administration of the drugs will, of course, have to be repeated many times, thus exposing the soldier or sailor to the dangers of sensitization. Taylor[33] has the merit to have called attention to another unjustified prophylactic use of these drugs—namely, the routine deposition of sulfonamide powder in clean operative wounds or in appendectomy.

3. The dosage of the drug and the period of administration should not exceed that necessary to cope with the infection. The smaller the total amount which is administered and the shorter the period of administration, the less are the chances for toxic and sensitization reactions to develop. That larger doses do not always yield more beneficial results in infection than smaller doses has been shown by Dowling and Lepper.[24] These authors found that sulfadiazine in the dosage of 3 Gm. daily is as effective in the treatment of pneumococcic pneumonia as when 6 Gm. are given daily. I believe that if a series of conditions other than pneumococcic pneumonia were analyzed, one might find that the optimal dosage of the sulfa drugs in many diseases is lower than is usually thought necessary for successful therapy.

4 The use of the drugs should be avoided as much as possible by elderly patients, by those whose kidneys or liver are damaged, and by those who are known to be allergic to other drugs.

5. The blood and the urine of the patient to whom a sulfa drug is administered should be frequently examined in order to detect, as early as possible, pathologic changes in the blood and the renal system. At the first observation of an eruption or drug fever, in the course of the sulfonamide therapy for a serious illness which requires urgently the use of the drug, the patient should be closely watched. In less serious diseases sulfonamide therapy should be immediately discontinued. The patient may then quickly recover from the drug reaction. For one should keep in mind that continuation of treatment in the presence of even a mild reaction may exacerbate this reaction into a more severe and serious one and may even prove fatal.

Summary

1. Two cases of bullous eruption following sulfonamide therapy are reported, one of which resembled pemphigus vulgaris.

2. The literature on cutaneous reactions produced by the sulfonamides is reviewed, and the mechanism of these reactions is discussed.

3. Conclusions are drawn in regard to rules to be observed at the administration of sulfa drugs, in order to prevent serious reactions and possible death.

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NERVOUS AND MENTAL SEQUELAE OF TROPICAL DISEASES

By insisting on certain precautions in personal hygiene and by preparing soldiers and sailors for meeting the moral hazards common in the tropics, many of the nervous and mental aftereffects from tropical diseases that are menacing members of the armed forces in various parts of the world can be prevented, Lieutenant Commander James L. McCartney (M.C.), USNR, says in *War Medicine*.

"American physicians, both in and out of the armed forces," Dr. McCartney says, "should familiarize themselves with tropical diseases, and especially the neuropsychiatric sequelae, for many men will return to America from the tropics with permanent neuropsychiatric disabilities. . . .

"Tropical diseases are so named because of their almost exclusive preponderance in that geographic belt lying between 23° 27′ north and south of the equator, known as the tropical zone, and in the bordering zones, known as the subtropical regions. On the other hand, with speeding up of transportation and the inevitable return of the majority of the American armed forces to their homeland, these diseases may find a foothold in less tropical climes. Fortunately for the American people, nearly 50 per cent of the tropical diseases are parasitic in origin, and 25 per cent of these disorders are arthropod (insects, spiders, crustaceans, etc.) borne. But there are yet 50 per cent of the diseases that may be brought back by the American forces, and most certainly many men will bear the sequelae of permanent disability. One has but to review history to be impressed by the fact that these diseases have repeatedly migrated into temperate zones and in their outrageous wanderings have played havoc among the peoples of the earth and accursed civilization and progress.

"That these diseases many times show neurologic sequelae is a well-known fact, although these degenerative changes have not always been recorded by authors on tropical diseases."

Among the tropical health hazards mentioned by Dr. McCartney is the fact that residence in the tropics sooner or later causes a reduction in the blood pressure and the basal metabolic rate of an appreciable number of persons. Then there is heat fever, resulting from the powerful heating effect of the tropical sun on the body, wherein the heat-regulating mechanism becomes overtaxed and so fails to keep the body below the temperature at which damage is done to body cells, especially to nerve cells. The mental changes from this condition are like those occurring in senility, and severe headaches and epileptic-like convulsions may persist for months or years. Another hazard of the tropical sun is the temporary or permanent blindness of parts of the eye that may result from light-stroke. Overstimulation by bright light over any length of time may cause night blindness. The latter is a neuropsychiatric problem in the tropics of military import, because persons suffering from this condition may have perfectly normal vision during the day and be useless as observers after the sun has gone down. Night flying, night watch, and night sentry duty for such victims are out of the question.

"Young Americans arriving in tropical countries," Dr. McCartney says, "find a milieu totally different from their home environment. Moral standards are lowered; human values are hardly worth mentioning, and intemperances of every kind are the order of the day. . . . . The amoral environment is too much for the white man, for he finds it constantly about him. Sexual promiscuity is everywhere to be found, and as a result psychic conflicts and guilt feelings are set up in the white man's conscience. . . ."

Alcoholism has its relationship to sexual problems and its bearing on vitamin deficiencies in the tropics. There also are the hazards of food intoxication, or [illegible] may lead to neuropsychiatric sequelae, as may also infections of the blood stream. Malaria has numerous neurologic sequelae.—*A.M.A. News*

TROPICAL DISEASES—A POSTWAR HEALTH PROBLEM

THOMAS T. MACKIE, LIEUTENANT COLONEL, MC, USA

IT IS becoming increasingly evident that the war will exert a profound influence upon many aspects of medical service in the United States. The immediate effect, the dilution of physicians remaining in civil life incidental to the needs of the armed forces, is probably the least important. A second early effect is more significant, though perhaps less obvious The inescapable curtailment of postgraduate medical education entails interference with advanced training, and at least an interruption of the supply of replacements for the field of public health practice. By far the most important effect, however, and one, the full impact of which will not be felt until after the cessation of hostilities and demobilization, is the possible shift of disease endemicity and consequent changes in the responsibilities of individual practitioners and of public health agencies.

The implication inherent in the term "tropical medicine"—that it comprises a group of diseases restricted to the hot countries—is incorrect. Although in some instances climate acts as a limiting factor by virtue of its controlling effect upon the availability of suitable intermediate hosts and insect vectors, in many of the more important conditions the limiting factors are merely those of the level of sanitation and hygiene prevalent in the area Many important so-called tropical diseases are capable of establishing themselves in the temperate zone and flourishing There are numerous illustrations of this in the past. Yellow fever has occurred in epidemic form on the Atlantic seaboard as far north as Boston. Asiatic cholera has been epidemic throughout the area of the eastern and central states. Periodic epidemics of dengue fever are familiar about the Gulf of Mexico Outbreaks of bubonic plague have occurred in various of our seaports and this disease, in its sylvatic form, is widespread in the wild rodent population in the West, and has extended eastward across the Continental Divide. Until comparatively recent times, malaria was a familiar disease even in the northern states. Amebic and bacillary dysentery, long considered strictly tropical, are now recognized to have a world-wide distribution and to be prevalent wherever conditions permit fecal contamination of food and water. An endemic focus of filariasis, which produces tropical elephantiasis, has long existed in the vicinity of Charleston, South Carolina These illustrations demonstrate the fallacy of an assumption that so-called tropical diseases cannot extend widely beyond their present areas of recognized endemicity. These potentialities for widened endemicity, together with the extent of present military and naval operations in the tropics and subtropics, have created an increasing fear that our men returning from these areas after the war will be responsible for the introduction and wide extension of tropical diseases in the United States. Although certain of these conditions will be imported, there is an unfortunate tendency to overemphasize the hazard.

The first World War demonstrated that military operations cannot be undertaken in the tropics and subtropics without a high disease rate unless special precautions are taken. Thus, in Macedonia, malaria was in large part responsible for the military stalemate between the Allied armies and the German armies. Similarly, bacillary dysentery played an important part in failure of the Gallipoli campaign. Amebiasis proved to be of less importance The infection rate among troops returning from the Near East is reported to have been approximately 10 per cent [1] The marked difference in morbidity is attributable to the fact that amebic infection, except under highly specialized and unusual conditions, does not become epidemic.

The present war involves the mobilization of large numbers of men in many regions where tropical diseases are endemic The provision of complete protection against infection would constitute an enormous problem in preventive medicine under peacetime conditions. In wartime, and in the face of combat conditions, especially those of jungle warfare, and those attendant upon the rapid movement of mechanized operations, the problem is infinitely more difficult Although great advances have been made in the field of immunology which permit protection against a number of important diseases, we have as yet no means of effective immunization against the protozoan infections, the parasitic helminths, and certain diseases caused by bacteria and other agents endemic in the tropical theaters of operations. The risk of these conditions, however, has been greatly minimized by marked improvements in field sanitation, notably in connection with the provision of safe water and protection against insect vectors of disease. The equipment of troops with bed nets, head nets, gloves, insect repellents, and insecticides, and the application of suppressive treat-

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ment, should do much to control morbidity to malaria and prevent a repetition of the experience of the armies in Macedonia in the last war.

Exposure and infection, however, cannot be completely eliminated. Furthermore, in the case of certain tropical diseases the most efficient therapeutic procedures do not invariably, or in some instances even usually, eradicate the infecting organism. Malaria, due to Plasmodium vivax, may exhibit a late recurrence rate of over 50 per cent.[2] Although infections by P. falciparum, the causative agent of the dangerous tropical malaria, are more amenable to immediate therapy, chronic infections persisting for many months are not uncommon. In all of these chronic infections, gametocytes, the sexual form of the plasmodium which is infective to the anopheline mosquito, are commonly found in the peripheral blood.

Bacillary dysentery is widespread throughout the tropics and, undoubtedly, significant numbers of men will be infected. Fortunately the great therapeutic efficiency of the sulfonamide drugs has relegated this disease to a position of importance far inferior to that which it attained in the first World War. Extensive clinical trials, however, have demonstrated that they will not completely eliminate the carrier.

Amebiasis, likewise, is widely prevalent wherever bad conditions of sanitation exist. Complete eradication of the Endamoeba histolytica is frequently difficult in the absence of intensive therapy. Furthermore, a high proportion of individuals do not present the clinical picture of dysentery, and in fact may exhibit little evidence of the infection. Such infections may persist for many years and constitute a hazard to the carrier and a potential focus for dissemination.

It appears possible that typhoid fever may again assume some importance. It is highly endemic in many tropical regions. Past experience indicates that prophylactic vaccination will greatly reduce, although it will not completely climinate, morbidity to this disease. Furthermore, the resulting partial immunity considerably alters the clinical picture and complicates diagnosis, and it may augment the relative number of undiagnosed mild ambulatory cases. Although no figures are available concerning the incidence of the carrier state among vaccinated individuals, there is little reason to suppose that chronic infections will be eliminated. The observation that a larger proportion of immunized mice become temporary carriers than do nonimmunized mice[3] suggests that vaccination may even augment the relative numbers of healthy carriers.

Filariasis, due to infection by the Wuchereria bancrofti, is another widespread tropical disease to which numbers of our men will be exposed. Since we have as yet no effective therapeutic agent, chronicity is the rule and the microfilariae infective to the mosquito persist in the peripheral blood for considerable periods of time.

It is evident, therefore, that instances of these infections and possibly others may be anticipated among personnel returning from the various tropical theaters of war. It is obviously impossible to estimate the numbers which will be affected. The potential importance of this problem, however, is well recognized by the Army and Navy, and in cooperation with the United States Public Health Service detailed plans are in preparation to prevent seeding of the civilian population with infective returned individuals. No method of screening, however, will identify all cases. There is, therefore, a very real responsibility devolving upon the individual practitioner who must familiarize himself with the diagnosis and treatment of tropical diseases, and upon public health agencies which must exercise effective control of the epidemiologic factors concerned in the spread of these conditions. Such cooperative action on the part of the services, the medical practitioner, and local public health agencies should afford more than adequate protection.

It is necessary, however, that individual physicians have some familiarity with the epidemiology of the more important tropical diseases. Many of them are transmitted by insects. For some, an arthropod is a required intermediate or definitive host in which the causative agent carries out a part of its life cycle. In other instances, insect transmission is purely mechanical. Certain of these conditions are spread by contaminated water and food and others through soil pollution.

It follows, therefore, that any impact which tropical medicine may exert upon the United States will be felt predominantly in rural areas where the general level of sanitation is inferior to that of large urban centers. It is here that optimal conditions exist for insect propagation. The housefly and the anopheline and culicine mosquitoes are the most important disease vectors pertinent to this discussion.

The widespread use of unscreened privies and the usual methods for storage of manure are conducive to extensive fly breeding. The ordinary housefly is an important vector of the intestinal bacterial and protozoal infections, and of certain helminthic infestations. Its habits of feeding upon human excreta and regurgitating in the course of the subsequent feed, together with its flight range, permit it to carry these agents considerable distances from the original source. A further factor of importance in the potential spread of certain of these conditions is the almost

universal practice, especially in small communities, of discharging crude sewage into streams and rivers. This entails extensive water pollution and considerably augments the hazard of spread of the enteric diseases.

Malaria in the United States is transmitted predominantly by the Anopheles quadrimaculatus which is a satisfactory host both for P. falciparum and P. vivax. Its range extends as far north as New Hampshire, southern Ontario, and Minnesota. It accepts a variety of breeding places including fresh-water pools, ponds, lakes, swamps, and even brackish marshes.[4] It hibernates through the winter in barns, cellars, and other protected spots. Furthermore, the resistance of the plasmodia in the oocyst stage under conditions of not too extreme cold permits them to overwinter in the hibernating insect and to mature in the following spring. Both of these factors, therefore, combine to carry infection over the winter and to provide for transmission in the subsequent spring and summer.

Filariasis is transmitted by a variety of different mosquitoes, three of which, Aedes aegypti, Culex quinquefasciatus, and C. pipiens, are common domestic pest mosquitoes in the United States. C. quinquefasciatus is the most abundant night-biting house mosquito in the southern states, extending north into Tennessee and Virginia, where its range overlaps that of its near relative C. pipiens, the common house mosquito of the north.[5] These two culicines are particularly common vectors of filariasis in many parts of the world.[1]

From this superficial scrutiny of some of the medical problems associated with the war, certain probabilities and possibilities appear. It is evident that numbers of individuals returning from the tropics will carry infections which may be transmissible in this country providing necessary epidemiologic conditions are fulfilled. Although the numbers of such individuals cannot be foretold at present, the mechanism set up by the Army, the Navy, and the United States Public Health Service should amply protect against extensive exposure of civilian population groups. This barrier, however, must be supplemented by local public health agencies and by the individual practitioner.

Implicit in such protection of the community, and of the infected individual himself, is the need for a much wider teaching of tropical medicine, and for instruction in the epidemiology of tropical diseases. The inclusion of these subjects in the undergraduate medical curriculum does not meet the needs since it does not reach the practicing physician. Since the problem affects so intimately both the individual practitioner and the public health agency, a simple solution should be available. A cooperative arrangement between county medical societies, state departments of health, and medical schools should permit the preparation of a series of symposiums covering the more important tropical diseases. Presentation of such a series of programs at regular meetings of county medical societies would do much to inform practicing physicians concerning these unfamiliar conditions, and greatly facilitate the handling of problems in this field of medicine which may arise in the future.

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I shall consider only those of public-health importance since this is my immediate concern. I might state, first, that we are well aware of this problem as evidenced by the fact that a year ago, after the Annual Meeting of the State Medical Society in New York City, a refresher course in tropical medicine was given to the district state health officers, arranged for us at the Cornell Medical College by Dr. Wilson G. Smillie, and with Dr. Mackie, incidentally, as one of the speakers. We also have purchased and installed in each district

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From this superficial scrutiny of some of the medical problems associated with the war, certain probabilities and possibilities appear. It is evident that numbers of individuals returning from the tropics will carry infections which may be transmissible in this country providing necessary epidemiologic conditions are fulfilled. Although the numbers of such individuals cannot be foretold at present, the mechanism set up by the Army, the Navy, and the United States Public Health Service should amply protect against extensive exposure of civilian population groups. This barrier, however, must be supplemented by local public health agencies and by the individual practitioner.

Implicit in such protection of the community, and of the infected individual himself, is the need for a much wider teaching of tropical medicine, and for instruction in the epidemiology of tropical diseases. The inclusion of these subjects in the undergraduate medical curriculum does not meet the needs since it does not reach the practicing physician. Since the problem affects so intimately both the individual practitioner and the public health agency, a simple solution should be available. A cooperative arrangement between county medical societies, state departments of health, and medical schools should permit the preparation of a series of symposiums covering the more important tropical diseases. Presentation of such a series of programs at regular meetings of county medical societies would do much to inform practicing physicians concerning these unfamiliar conditions, and greatly facilitate the handling of problems in this field of medicine which may arise in the future.

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This problem of the increase in tropical diseases divides itself roughly into two parts, it seems to me: (1) those diseases which are of public-health importance—that is, those which are likely to spread to others from the foci represented by men returning from the tropical areas; and (2) those which are not of public-health importance, since they will not be communicated to others. These latter diseases, nevertheless, will present difficult diagnostic and treatment problems to the medical practitioner.

I shall consider only those of public-health importance since this is my immediate concern. I might state, first, that we are well aware of this problem as evidenced by the fact that a year ago, after the Annual Meeting of the State Medical Society in New York City, a refresher course in tropical medicine was given to the district state health officers, arranged for us at the Cornell Medical College by Dr. Wilson G. Smillie, and with Dr. Mackie, incidentally, as one of the speakers. We also have purchased and installed in each district

office copies of the recently revised two-volume edition of *Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases* by Strong (The Blakiston Company, Sixth edition, 1942), which, incidentally, is an excellent, up-to-date, exhaustive text on tropical medicine.

Tropical diseases of public-health importance may be divided into those in which an intermediate host is necessary and those in which no such intermediate host is involved.

Among those in which there is no intermediate host, we may consider first the venereal diseases. Although we may have some bizarre venereal diseases brought back by members of the armed forces, at least there will be no explosive outbreak, due to the mode of spread compared with diseases transmissible through water and milk. As a matter of fact, many venereal diseases, formerly thought to be rare in New York State, have been found to be quite prevalent; lymphogranuloma venereum, for example, has been found to be very prevalent in New York City, particularly among certain groups.

As to the enteric tropical diseases, I have difficulty in believing that they will be any great menace to the civilian population, unless environmental sanitation barriers which we have so effectively built up in the past few decades are destined to be destroyed or otherwise made ineffective. I refer to our water filtration plants, sewage disposal systems, milk pasteurization plants, etc. In view of the present trend of events in the war, such destruction of our environmental sanitation devices seems to me to be very unlikely.

True, many men will come back with bacillary dysentery and amebic dysentery, but we have a high incidence of both these infections in the State at the present time. Although there may be some increase in infection of the members of the households to which these men return, our protection of water and milk supplies and methods of disposing of sewage should prevent any widespread outbreaks of these conditions, just as they have reduced in the past the incidence of typhoid fever and the other enteric infections. The rural areas with their admittedly poorer standards of environmental sanitation may show more of an increase than the urban areas, but just as typhoid disappeared in the rural areas as well as in the cities when the city water supplies were cleaned up, this increase in the rural incidence of enteric diseases should be a transitory phenomenon, if it appears at all.

With respect to those diseases in which there are intermediate hosts—I must confess that these concern me considerably more than the diseases that fall into the classification I have just discussed. Fortunately, we can check many of these diseases off the list for the simple reason that we simply do not have the necessary intermediate host in New York State. We probably should not be too sure about some of these diseases, however, since there is the possibility that the necessary host may be imported as well, just as the A. gambiae was accidentally brought, with devastating results, from Africa to South America, thereby greatly increasing the malaria hazard until through almost superhuman effort and at tremendous expense this vector was exterminated. Another possibility is that we may find that insects or other potential intermediate hosts which are already present in New York State are capable of transmitting the introduced disease, although in the past such insects were not known to be capable of so doing.

These are rather theoretic considerations, however, and rather than worry too much about them we probably should concentrate upon those tropical diseases for which we know we have the insect vector present and which at times in the past have been of great importance in this State. Malaria, of course, heads the list. This was formerly an extremely important communicable disease in New York State. In fact, only within the past twenty years or so has it essentially disappeared from the Hudson Valley as an endemic disease. We have plenty of anopheline mosquitoes and with the almost inevitable heavier seeding of them with malaria parasites, upon the return of members of our armed forces, it seems equally inevitable that there will be a rise in the prevalence of malaria among New York State residents who have not left home. This, however, should be a temporary rise, as there seems to be no reason to believe that the factors which were responsible for the decrease of malaria in this State in the past will not operate again to reduce the incidence. Some of these factors were concerned primarily with projects other than malaria control, such as land drainage for cultivation purposes, but many are the result of a deliberate antimosquito campaign, particularly in those counties in the vicinity of New York City. These campaigns are being carried on at present, and no doubt will be further intensified with the increased malarial threat.

The above remarks concerning malaria could be applied as well to yellow fever, although with the immunization of all members of the armed forces against yellow fever, and the very low population of Aedes aegypti mosquitoes in this State, there is little need to be concerned about a repetition of the yellow fever epidemics which occurred in this part of the country in the eighteenth and nineteenth centuries.

As to plague, this is not so remote a possibility as might appear on the surface. With the tremendously increased shipping to and from plague ports, and with the necessarily less careful supervision of ships returning from these ports, there is a substantial possibility that infected rat fleas may be introduced into New York City. Here again, however, we need to keep a proper perspective, since we have what appears to be a permanent focus of plague infection in the West in the form of plague in wild rodents. If plague should be introduced into this State, we should be able to control it well as far as cities are concerned through rat control procedures.

Lt. Col. Mackie's comments with regard to filariasis in South Carolina are of interest. Of equal interest to the presence of this focus, however, is the fact that it has continued to be localized in that area, in spite of the widespread prevalence of mosquitoes

which act as vectors. Therefore in this case there would appear to be some other factor involved in the spread besides the ready availability of the insect vector.

In conclusion, let me comment that as far as the tropical disease problem here is concerned one happy circumstance is the fact that in this State there are many thoroughly trained and experienced experts in tropical diseases, who may be called upon for advice if it is needed.

HOW LONG SHOULD A MAN WORK?

Somewhere there's a happy medium in the production period. If men work too long, they fatigue; and each task takes longer and longer until it's a losing battle. This, of course, does not even consider the poorer quality of work, the increased tendency toward accident or disease, and the steady rise in inefficiency.

On the other hand, if men do not work long enough, even though they do work efficiently, they can't turn out the maximum number of units. There's man-waste there—and again a losing battle. Somewhere between the two is the happy medium—the golden period where workers produce most without harming themselves or their product.

Now where is this period, important at any time in the smooth functioning of an industry, but especially important when a country is at war? A committee representing the War and Navy Departments, the Maritime Commission, the Public Health Service, the War Manpower Commission, the War Production Board, and the Commerce and Labor Departments studied the problem and here are its findings:

1. There should be a weekly day of rest. The Biblical injunction of one day's rest in seven seems to hold up after five thousand years. The seven-day work week for individuals is injurious to health, production, and morale. It slows down production because of the cumulative effects of fatigue when not broken by rest and relaxation. In fact, the workers take time off themselves. Too continuous work leads to increased absenteeism. Only in emergencies, and then for a limited time, should workers or supervisors (or doctors) forego their weekly day of rest.

2. There should be at least a thirty-minute meal period in midshift. Those working with toxic substances should be given sufficient time to cleanse their hands thoroughly before eating. (Physicians please note.) Also, there should be adequate food. Coffee and doughnuts for breakfast and a "coke" for lunch are not enough for a man or woman doing work.

3. The work day should be eight hours long, and the week six full days. Less than this makes for inadequate production. More than this, in time, results in impairing the health and efficiency of the workers and in decreasing the flow of production. Extra hours add little to output because the quality of work deteriorates not only during the extra hours but also during the regular working hours; absenteeism rises sharply and accidents and illness increase.

4. There should be vacations completely away from the job. These vacations should be so staggered as not to delay production and the period should be so balanced as to produce maximum benefit to the worker without too high a cost in productive hours lost.

Those are the recommendations, Doctor. How do they apply to your own practice and habits?—*Norman R. Goldsmith, M.D., in Pittsburgh Med. Bull.*

MOTHERS NOW ARE YOUNGER

According to the *Statistical Bulletin* of the Metropolitan Life Insurance Company, the burden of rearing the nation's children is being borne by very young women, and, at the same time, the proportion of young women within the reproductive ages is decreasing. In 1920 young women under 20 years of age contributed 8.6 per cent of the total births for the year. This percentage increased gradually to 11 per cent in 1935 and 1940. Women of ages 20 to 24 also contributed an increasing percentage of children during the two decades from 1920 to 1940, the figures mounting from 28.1 per cent at the beginning of this period to 31.3 per cent at the end.

However, the next age group, 25 to 29 years, presents a mixed picture. The relative contribution to total annual births borne by women of this age group at first fell from 27.9 per cent in 1920 to 26.1 per cent in 1930, but subsequently rose to 28.6 per cent in 1940. The net result was that, for this age group, as for those younger, the relative contribution at the end of the twenty-year period was greater than at its beginning.

In the case of women of ages 30 to 34, after some fluctuation, the percentage contribution to total annual births was *smaller* at the end of the two decades than at its beginning. In 1920 women of this age group bore 19 per cent of the children for the year, while in 1940 the figure fell to 17.7 per cent. A much more marked decrease is found among women of ages 35 or more who bore children. Whereas these women accounted for 16.4 per cent, or practically one-sixth of the births in 1920, by 1940 the figure for this age group fell to 11.4 per cent, or about one-ninth of the total.—*Medical Record*

NEW DEVELOPMENTS IN INFANTILE PARALYSIS

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THE past few years have brought to us more knowledge of poliomyelitis than all the previous generations in which this disease has been known to man. The common concept of poliomyelitis was that it was a virus disease, capable of using the olfactory nerve as its portal of entry to the human central nervous system, and that it produced death of anterior horn cells of the cord with resultant paralysis. These were true observations, as far as they went, but they were also dangerous half-truths, for they failed to take into consideration other important factors. There was little appreciation of the extensive pathologic changes and consequently but a poor understanding of the complete symptomatology.

The virus is an obligatory neural parasite. While it can retain its infectious and invasive powers for extremely long periods of time under the most varied and apparently adverse circumstances, it cannot multiply save when it draws upon the substance of particular nerve cells for its metabolic requirements. Although it has been found in the blood stream, it apparently cannot reproduce there, and when it is present it is there only as an inactive agent. The so-called "general systemic" stage of the disease is not due to such a blood stream infection but is dependent upon a much more complicated mechanism resulting from central and brain nerve cell invasion.

The normal and usual method of travel of the virus throughout the body is reported to be by the pathways provided by the nerves. This is a neuro- or neuronotrophic virus. It leaves no demonstrable histologic change as it travels over or through the nerve fibers, yet its spread by way of neurons is dependent on healthy normal fibers and nerve cells. For example, it cannot progress in nerve tissue that has not fully regenerated after traumatic changes. The rate of the progression of the virus in peripheral nerves to the central nervous system has been calculated by Howe and Bodian[1] to be at the rate of 2.4 mm. per hour in the experimental animal. Such travel occurred in both the motor and the sensory fibers.

With travel of the virus within the body being along nerve fibers, the portal of entry becomes comparatively important in determining which portion of the central nervous system will be first invaded and consequently what train of symptoms are to develop. While the olfactory route is possible and while the olfactory pathway and the olfactory bulb are quite susceptible to virus invasion, the laboratory evidence fails to show that this is a common route in man. In the complete and careful examination of human autopsy material, Kessel[2] and his associates found but one olfactory bulb involved in 11 cases. Similarly, other workers—Sabin and Ward,[3] Howe and Bodian,[1] Swan,[4] and others[5]—have repeatedly presented findings that emphasize the fact that invasion by the olfactory pathway is a rare occurrence in human beings. Yet it has been only a few short years since the attention of much of the medical profession was focused on attempts to prevent poliomyelitis by blocking this single portal of entrance.

In the experimental animal, clinical disease can be produced by many portals. Although direct inoculation into the brain substances is a commonly used method, this is by no means the only portal. This method has been used because of the relative resistance of the experimental animals and because of the lack of sufficient concentration and purification of virus from the test material. In the relatively more susceptible animal the gastrointestinal tract offers a certain method of infection, as do the intracutaneous and subcutaneous routes. Direct inoculation into peripheral nerves produces central infections. Faber and Silverberg[6] have reported infection in monkeys by inhalation. The nasal and peritoneal routes are commonly utilized. Any method that allows the virus to come in contact with nerve tissue offers a suitable means of infection in the susceptible animal. There is no reason to think that this does not hold true in man, with a vast amount of evidence pointing to the fact that the gut is the common gateway.

Former teachings were to the effect that the virus was eliminated from the nasal pharynx and upper respiratory passages. This, too, is only a small part of the story. Repeated observations on the part of many workers fail to show the virus in the nasal pharyngeal secretions or washings, except on rare occasions and then only during the early course of the disease. There is no demonstrable centrifugal spread of the virus from the central nervous system to the nasal and olfactory passages. Kling, Pettersson, and Wernstedt[7] in 1912 reported the recovery of virus from human stools, but it remained for Trask and

Read by invitation at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 6, 1943, by John L. Lavan, M.D., Dr. P.H., Director of Research, The National Foundation for Infantile Paralysis, Inc.

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Paul[5] and later workers to show that this is not merely an occasional occurrence but that it is regular. Virus can be demonstrated with present-day methods in the stools of all patients and frequently in the stools of many contacts. That such elimination is not a transient phenomenon but occurs over periods of weeks and months has been shown by Piszczek[9,10] and Zichis.[9]

These are findings that depend to a large extent on the more recently developed and more nearly exact methods of detection and study of the poliomyelitis virus. Appreciation of them gives a much better basis for understanding infantile paralysis and has a direct bearing on the management of the case, but the methods of examining pathologic material from both human and experimental sources have not changed greatly during the past few decades. The impression is common with many clinicians that this disease is one which primarily, if not almost exclusively, affects the anterior horn cells of the spinal cord, producing its symptoms by death of these cells or by damage from edema and hemorrhage into the adjacent cord. Undoubtedly the very name of "acute anterior poliomyelitis" given to this form of paralyzing infection has tended to further these misconceptions of a sharply limited pathology. Careful studies of many hundreds of animals infected by routes other than direct intracerebral inoculation show that the cord may or may not be involved, while the brain always is. A similar condition has been found in a few human patients who died of intercurrent causes, either in a mild infection or before there had been time for extensive spread. The anterior gray part may or may not be involved when lesions are present in the cord. The posterior columns, the pyramidal tracts, the lateral and the intermediate zone or internuncial cells, the intervertebral ganglia[11] or dorsal roots all may commonly show unmistakable signs of virus invasion and damage with no correlation between the severity or extent of lesions in these areas and those in the anterior horn cells.

In all diagnosable cases of poliomyelitis, with the possible exception of early nonparalytic types with complete, spontaneous arrest of symptoms, there is an encephalitis with involvement of parts of the motor cortex. There is commonly an accompanying meningitis which is usually of a mild nature and is probably secondary to the deeper involvement. This pathology may or may not be accompanied by clinical symptoms and there may or may not be further pathologic changes in the cord. The medulla, midbrain, and thalamus are routinely involved in both the experimental animal infected by the gastrointestinal or pharyngeal routes and in man as evidenced by the study of pathologic changes[1] and by recovery of the virus.[3] These may be the only areas that show such changes.

The interpretation of clinical symptoms on the basis of pathologic findings is not easy. Examination of autopsy material commonly reveals extensive pathology totally unsuspected and unpredicted by clinical symptoms alone. And, likewise, the clinical manifestations at times are apparently out of all proportion to the severity of the manifest lesions present in the anterior horn cells of the corresponding cord-segment. The picture is indeed a complicated one. With extensive involvement of both sensory and motor cells over large areas of the central nervous system, and with the changes varying from slight reversible reactions to complete destruction of many cells, it is to be expected that there would not be a single clinical picture. It is certain that the simple concept of paralysis as the sole or main symptom is no longer reasonable. That paralysis can and does occur is certain, but it is equally certain that it is but an inconstant part of a complicated train of symptoms. With such massive and extensive involvement, it is apparent that pain, hyperirritability, and increased muscle reaction to stretch reflex (sometimes referred to as "spasm") and incoordination of muscle action all could be expected. It is also apparent that inability to perform voluntary motion of a muscle could be due to many neural mechanisms other than death of anterior horn cells. Disturbances at many levels in physical continuity and function of motor pathways with changes in nuclei and in communicating and connecting tracts of the central nervous system could well cause a pseudo- or temporary paralysis without significant damage in the corresponding anterior horn cells. It is not necessary to hypothecate ephemeral changes in anterior horn cells when demonstrable lesions occur at other key points of the neuromuscular system.

With these thoughts in mind, it is apparent that the medical profession was more than ready for some change in the system of therapy, therapy aimed at securing "rest" of damaged anterior horn cells through lessening of motion of the extremity and at providing protection of a weakened muscle from the pull of a strong, unaffected opposing muscle, with the hope of preventing future contractures and fibrotic changes.

There is no real evidence that either of these objectives was accomplished in the majority of cases. Certainly there is no physiologic evidence that muscular rest alters the rate of degeneration of infected or damaged anterior horn cells, nor is there satisfactory evidence that protracted immobilization prevents contractures and deformities.

In 1940, Elizabeth Kenny, an Australian nurse, came to this country and found an opportunity to demonstrate her methods and form of treatment at the University of Minnesota in Minneapolis. Funds were made available to that university by the National Foundation for Infantile Paralysis for the purpose of studying and evaluating her claims and contentions. A series of controlled cases was planned, the work being under the supervision of orthopaedic surgeons and physicians in physical medicine. Cases were admitted for trial. Publicity was carefully avoided at that university but the controlled experiment was not possible, for with the treatment of the first few cases the parents and the physicians of the community demanded the Kenny method. The results of her methods were spectacularly different. It is to be emphasized that until the present time all evaluation of these results has been based on only clinical impressions. Alternate cases for control purposes could not and probably can never be arranged. The value of the clinical impressions was fortified in so far as possible by obtaining the opinions of recognized and outstanding authorities in medical practice. Other studies, based on more exact physiologic evaluation of clinical changes, are currently being conducted. These studies must of necessity be both tedious and time-consuming. In most instances findings are as yet too fragmentary to be reported.

At about the end of the first year of study the National Foundation received a report from the University of Minnesota. This report, with some modifications and deletions, was carried in the *Journal of the American Medical Association* in June, 1941. Additional cases were admitted to the University Hospital and the Minneapolis General Hospital. Further observations were made. In December, 1941, a second report was rendered by the University to the National Foundation, in which it was stated in substance that the treatment did relieve the patient of pain, that there was apparently less stiffness, and that there was no evidence of contractures in the cases treated by Sister Kenny, up to that date. This report was most carefully considered by the National Foundation officials and advisory committee members. As a result, it was recommended that instruction in the method of treatment and the concept upon which it was based be made available to the medical and public health authorities of this country for their use, if they so desired. No other claims were made by the National Foundation with respect to this treatment.

Kenny has developed a method of treatment based on a concept of poliomyelitis that differs from the former one of flaccid paralysis as the predominant symptom. No attempt has been made to pass on the merits of her ideas; they are presented for clarification only. To her, "spasm" or increase in tonus and irritability of voluntary muscle is the prominent and important symptom. This does not preclude the possibility of true paralysis occurring as a result of massive destruction of anterior horn cells, but, according to her observations, this is a comparatively rare event, being present in not over 10 to 15 per cent of the patients admitted to any hospital for early medical care. In the usual case the spasm is directly or indirectly responsible for most of the symptoms. The early pain and the later tenderness on pressure and action, as well as still later contractures, are due to this spasm. Furthermore, the inability of a certain muscle to contract and to produce useful motion may be due to the pull of the opposing muscle or muscle groups acting as a simple brake, or because the muscle is pulled out of its normal resting stage into an extended position from which it is not capable of producing a contraction. Much that has been called paralysis and was thought to be due to anterior horn-cell damage is, according to Kenny, not flaccid paralysis but spasm in the opposing muscle, due, probably, to lesions at some level higher than the anterior horn cells, or due to other changes in the neuromuscular structure and function.

The treatment which Kenny has advanced for these conditions is aimed first at overcoming pain and spasm and second at providing early muscle training to re-establish muscle function and motor pathways. Both these objectives involve technics that have tended to set this special treatment aside as a "method." Actually, there is little that is new or different in the modalities employed. The method of application, the time of application, and particularly their purposes are different.

The application of heat by use of compresses at unusually high temperatures does quickly relieve the common symptom of pain found early in many severe poliomyelitis infections. Evidences of disturbance of circulation rapidly disappear, as do changes in temperature of the involved parts. There are beneficent effects in addition to the primary purpose of providing relaxation of spasm by reflex action.

As soon as the pain and tenderness subside and as soon as motion can be performed without discomfort, the affected parts are moved through their utilizable arc of motion. Without attempting to give the details of the work in physical therapy carried out by Kenny, suffice it to say that the aim is not that of restoring strength but rather of securing a rhythmic and coordinated action of all muscles concerned with any motion.

Weakened, "incoordinated," or "alienated" muscles (to use her term) are stimulated and directed by individual attention to resume their correct function, normal in point of time and direction of action. Other muscles not involved or involved to a lesser degree are discouraged from assuming any abnormal action as the result of the patient's willful or unconscious effort to effect a desired motion.

As a result of the combination of heat, regulated exercise, the direction of motor impulses, and the absences of long periods of immobilization, patients under the Kenny form of treatment show many desirable benefits. Today there is much that is not fully understood about this or other methods of treatment. There is much yet to be found out. There is much that must be done to lessen the time and the amount of work now required to apply successfully the Kenny method to any large group of patients.

Alternate case studies have not been possible, but those who know her work best want to see its benefits extended. While there is today a lack of scientifically controlled evidence both with respect to clinical cases and as collected in the laboratory, there are few who will deny that Elizabeth Kenny has made a great contribution to the control of the end results of poliomyelitis. There has been interjected for both patient and physician alike a new hope for lessening the crippling aftereffects; there has been provided a new stimulus to those who work in research. A new line of study has been emphasized as important

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CONTINUOUS CAUDAL ANESTHESIA HAS WAR USE

The new safe method of making childbirth painless and comfortable, called continuous caudal anesthesia, may prove a great boon to the war wounded, it appears from a report by Dr James L Southworth, Dr. Waldo B Edwards, and Dr. Robert A Hingson, of the U S. Public Health Service

The new anesthesia has now been used in 255 cases in general surgery with only three failures, the doctors report The cases included operations for femoral and inguinal hernia, cesarean delivery of a baby; setting of broken bones, other orthopaedic operations, and amputations of legs and feet; and surgical treatment of varicose veins. It also shows promise as a method of treating thrombophlebitis in the legs.

"It would seem," the doctors state, "that this method is adaptable for use in the treatment of casualties both in civilian and military practice where it would be desirable to have a safe, prolonged analgesia during the transportation and the physical and roentgenologic examinations of the injured"

One anesthetist with several trained corpsmen or medical attendants could handle a large number of patients at one time, they point out. It might be possible to give this anesthetic to some of the war wounded on the field and transport them painlessly to a base for treatment, thus perhaps reducing the instances of shock. The method might also be valuable in preventing the delayed shock condition usually referred to as "crush syndrome."

The new anesthetic method consists of continuous injection near the base of the spine of a pain-killing chemical, metycaine. The drug temporarily blocks the nerve pathways for pain below the level of the umbilicus but does not cause unconsciousness Its chief disadvantage for surgical operations is the time consumed—thirty to forty minutes—to give the anesthetic and allow it to become complete A skilled anesthetist, however, can have the patient ready for certain types of operations in ten minutes.—*Science News Letter*

TUBERCULOSIS AND THE POOR

We must keep well in mind that tuberculosis is a poor man's disease. It kills seven times as many per hundred thousand among unskilled workers as among the higher paid individuals. It strikes those least prepared to take the blow. That fact in itself is sufficient to make it imperative that the cost come out of sources other than the victims' meager income

If we are going to finance the war (against tuberculosis) out of the pockets of those found to be suffering from the disease, we may as well hoist the white flag. The war cannot be won that way. The public health is the public trust and responsibility and doubly so when the danger comes from a communicable disease.—*Matthew Woll, in Penna's Health*

VAGINAL ANTISEPSIS DURING LABOR*

HARRY W. MAYES, A. M., M.D., F.A.C.S., Brooklyn

AT THE present time great differences of opinion exist among obstetricians as to the value of using any antiseptic solution in the birth canal during labor and at the time of delivery. This report was undertaken in order to determine the opinions of obstetricians and to present a summary of the findings from a group of hospitals so that a clearer picture may be given of the current status and degree of acceptance which this procedure has achieved.

Survey of Diplomates of the American Board

A survey of Diplomates of the American Board of Obstetrics and Gynecology is shown in Table 1. Of the 848 men who replied, 517, or 60.9 per cent, reported that they use vaginal instillations during labor. Of this 60.9 per cent, 248 (29.2 per cent) of the entire group used them routinely and 269 (31.7 per cent) occasionally. Thirty-six physicians did not report on the use of the procedure in labor since they practice only gynecology. Two hundred and ninety-six (34.9 per cent) used the technic routinely before doing a cesarean section, 29 (3.4 per cent) used it occasionally, and 424 (50 per cent), not at all. Ninety-nine (11.6 per cent) did not reply.

Inquiring further in order to determine whether and how often vaginal antiseptics were used before gynecologic operations, we found that 442 of the 848 physicians prepared the vagina before doing a hysterectomy, 342 out of 602 before doing a dilatation and curettage (this question was not included in the first cards sent out), but only 348 of the 848 prepared the vagina in treating abortions. The large number of women who develop infection following abortion and miscarriage may be accounted for in part by the fact that fewer than half of their physicians use vaginal antiseptics in these cases.

The number of maternal deaths and deaths from sepsis was not reported in this survey.

There were 305 physicians who expressed favorable opinions regarding the use of vaginal antiseptics during labor. Seven reported having used vaginal instillations for from ten to fifteen years. Many physicians stressed the careful use of vaginal instillations; others reported that the technic was indicated in long labors and in operative deliveries.

In evaluating the expression of opinion of the Diplomates, it seems only fair to take into consideration the experience which the individual member has had with the use of vaginal instillations. Those who use instillations routinely should be better judges than those who use them only occasionally or not at all. There were 52 Diplomates who opposed instillations. This is 6 per cent of those who replied to the survey, and since these men state that they have never used the technic, their opinions are based on other factors. Thirteen thought their records were good enough without the protection offered by the use of vaginal instillations.

Concerning the antiseptics used and the number of cases reported (Table 2), 180 of the 517 obstetricians who used vaginal instillations in labor used mercurochrome and reported 121,675 deliveries; 142 used merthiolate and reported 44,000 deliveries. There were 24 different solutions used—some used more than one solution—and a total of 224,575 deliveries. Mercurochrome was the principal antiseptic used when vaginal instillations were first introduced, and although many of the reports have indicated a change to other solutions, it still remains the most popular.

During the last eighteen years at the Methodist Hospital we have been using vaginal instillations of mercurochrome as routine during labor and at the time of delivery. We have had 25,000 vaginal deliveries with but two deaths from infection, and there have been no such deaths in the last 12,000 vaginal deliveries.

We are convinced that the instillations were definitely responsible for reducing our morbidity and mortality from puerperal infection, but there are still many physicians who are either undecided as to the value of the method or who are definitely opposed to it. In order to present a larger series of cases and to bring further evidence to bear on the subject, I have contacted other hospitals whose statistics are here reviewed.

Hospital Survey

Out of 41 hospitals reporting, 14 used instillations routinely, 16 occasionally, and 11 not at all. Of the 30 that employed the technic, 18 used mercurochrome, 7 used merthiolate, and 5 used other solutions. Of these 30 hospitals, rectal examinations were made routinely in 7, rectal and vaginal examinations occasionally or when indicated in 14, and both rectal and vaginal in 6.

* Survey of 848 Diplomates of the American Board of Obstetrics and Gynecology, and a study of 236,295 hospital deliveries following its use.

Attending Obstetrician and Gynecologist of the Methodist Hospital, Brooklyn.

TABLE 1.—SURVEY OF DIPLOMATES OF THE AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY*

Use Vaginal Instillations During Labor		Use Vaginal Instillations Before Cesarean Section	
Use routinely	248	Use routinely	296
Use occasionally	269	Use occasionally	29
Use no instillations	295	Use no instillations	424
Card left blank or practice only gynecology	36	Card left blank	99
Total	848	Total	848

* Total number of Diplomates, 1,403, total number replying, 848.

TABLE 2.—SURVEY OF DIPLOMATES OF THE AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

Antiseptics Used	Physicians	Cases Reported
Mercurochrome	180	121,675
Merthiolate	142	44,000
Acriflavine in glycerin	44	25,700
Zephiran	22	3,200
Metaphen	19	10,000
Mercresin	16	17,000
Other solutions	...	3,000
Total		224,575

Three did not report. Several solutions were used in the preparation of the perineum for delivery. Of these, 13 were mercurochrome, 7 merthiolate, 4 mercresin, and 2 lysol.

There were (Table 3) 133,150 deliveries following the use of mercurochrome as a vaginal antiseptic, both routinely and occasionally, with a death rate due to sepsis of 0.33 per 1,000 deliveries. Following the routine use of mercurochrome, there were 63,751 deliveries with a rate of 0.31. With mercurochrome used only occasionally, there were 69,399 deliveries with a rate of 0.34 deaths per 1,000. If we omit the records from one hospital where mercurochrome is used very infrequently, there would be only 8 deaths from sepsis for 51,100 deliveries where mercurochrome was used occasionally. Three of these followed cesarean sections.

Following the use of other antiseptics, there was a total of 103,145 deliveries with a death rate from sepsis of 0.46. In 72,900 of these deliveries, the instillations were used as routine with a rate of 0.50, and in 30,245 they were used occasionally with a rate of 0.36. Thirty-four of the 37 deaths in hospitals using other antiseptics routinely occurred in two hospitals. Omitting their statistics, there were 23,794 deliveries following the routine use of an antiseptic other than mercurochrome with but 3 deaths from sepsis.

Among the 11 hospitals which did not use vaginal antiseptics, 5 reported 45,457 deliveries with 48 deaths from puerperal infection, a little over one septic death for each 1,000 deliveries.

In the 30 hospitals using instillations either routinely or occasionally, the death rate for cesareans where instillations were used was 4.6 per 1,000. In the 11 hospitals not using instillations it was 12 per 1,000. There were 2,475 cesarean sections following the mercurochrome technic with only 8 deaths from infection, a rate of 3.2 per 1,000.

Reports from abortions are not so encouraging. This is probably due to the fact that though patients are instilled for labor, similar precaution against infection is omitted for abortions. In the 30 hospitals that use instillations for labor, there were 11,566 cases of abortion in which vaginal antiseptics may or may not have been used. A percentage of 76.3 of the deaths were due to infection, a rate of 6.6 per 1,000 cases. In the hospitals that do not use vaginal antiseptics for labor, there were 6,787 abortions in which instillations were not used, with 86 per cent of the deaths due to sepsis, a rate of 7.9 per 1,000. We have had 690 abortions at the Methodist Hospital without a death from sepsis. The patients are instilled as though they were in labor.

The increased interest and improvement in technic in the use of vaginal antiseptics is shown by the fact that in these 30 hospitals during the last three years (1939, 1940, 1941) there have been 95,890 deliveries with vaginal antiseptics used routinely or occasionally and only 12 deaths resulting from puerperal infection. In 52,746 deliveries mercurochrome was used, with 5

TABLE 3.—HOSPITAL SURVEY

	Deliveries				Cesarean Sections				Abortions			
		Maternal Deaths Sepsis				Maternal Deaths Sepsis				Maternal Deaths Sepsis		
	Cases	Total	No	Rate	Cases	Total	No.	Rate	Cases	Total	No	Rate
Mercurochrome:												
Routine	63,751	147	20	0.31	2,475	52	8	3.2	3,655	35	26	7 1
Occasional	69,399	133	24	0.34	2,140	47	13	6 1	3,959	26	21	5 5
Total	133,150	280	44	0 33	4,615	99	21	4 5	7,614	61	47	6 1
Other antiseptics:												
Routine	72,900	250	37	0.50	2,437	43	11	4 5	3,287	37	29	8 8
Occasional	30,245	76	11	0.36	466	11	3	6 4	665	3	1	1.5
Total	103,145	326	48	0 46	2,903	54	14	4 8	3,952	40	30	7.5
Total using antiseptics	236,295	606	92	0 38	7,518	153	35	4.6	11,566	101	77	6 6
No antiseptics	67,167	195	52	0.77	1,580	38	19	12 0	6,787	66	54	7 9
New York City (1940)	114,117		98	0 86								
U S A. (1940)	2,360,399		2,292	0 90								

deaths from sepsis; in 43,144 deliveries where other solutions were used, 7 deaths occurred. During the same period, there were 13,424 cases in which no instillations were used, with 6 deaths from sepsis.

Conclusions

The prophylactic use of a vaginal antiseptic during labor and at the time of delivery is no longer in the experimental stage. This is indicated by the fact that 517 out of 848 Diplomates of the American Board of Obstetrics and Gynecology use vaginal antiseptics during labor, and that during the last three years (1939, 1940, 1941) 95,890 patients covered in a hospital survey have been delivered following the use of vaginal antiseptics with only 12 deaths from sepsis. Of these deliveries, the mercurochrome technic was used in 52,746, either routinely or occasionally, with but 5 deaths from infection.

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ALLERGIC TUBERCULOSIS IMMUNITY

Widely accepted views as to the relationship between [illegible] in tuberculosis are challenged [illegible] Kelly of the Detroit Tuberculosis Sanatorium. In a recent summary Rich concluded that allergy is not a necessary accompaniment of an effective immunity in any infectious disease. This conclusion was based largely on experiments which indicated that allergic guinea pigs that are given desensitizing doses of tuberculin are able to withstand subsequent infection with highly virulent strains of tubercle bacilli as well as control guinea pigs left in their original hypersensitive state. This result is of practical clinical interest, since it suggests that tuberculin therapy is without deleterious effects.

Subsequently, Willis questioned the experimental basis for this conclusion, since he found that there was but slight difference between allergic and desensitized guinea pigs if they were given massive test doses of highly virulent tubercle bacilli but that the results were quite different with smaller or less virulent doses. With doses that allow the injected animals to remain alive for at least six months, a 100 per cent mortality of the tuberculin-desensitized animals took place long before all non-desensitized controls had died. Moreover, in the desensitized animals the lungs were almost completely hepatized by tuberculous pneumonia, with little or no involvement of the liver or the spleen. In the allergic controls the pulmonary involvement was minimal, the spleen being the organ showing the maximum predilection to the disease. Lack of acquired allergy was apparently responsible for the free and unrestrained growth of tubercle bacilli in the desensitized lungs.

During the past three years 218 normal guinea pigs have been infected subcutaneously with fatal doses of virulent human tubercle bacilli in the Detroit Laboratory and tested quantitatively for skin sensitivity throughout the course of the disease. In all cases the acquired skin sensitivity increased to a maximum in about four to five weeks. After this the animals could be divided into two groups. In one group the skin sensitivity decreases rapidly after the fifth week, the animals becoming desensitized by about the twelfth week, which spontaneous desensitization was invariably followed by death. On necropsy, extensive pulmonary involvement was noted, with enormous numbers of tubercle bacilli in the lungs. In the other group the acquired skin sensitivity was not decreased but increased slightly above the five-week level. These durallergic animals remained alive well beyond the fourteenth week and on etherization showed but few acid-fast bacilli in pulmonary sections or smears.

From such data Woodruff and Kelly conclude that a quantitative relationship between skin sensitivity and pulmonary resistance to tuberculosis exists, nonallergic or spontaneously desensitized pulmonary tissues favoring a profuse local proliferation of the tubercle bacilli. Spontaneous desensitization is demonstrated also in human tuberculous patients—*J.A.M.A.*

WHAT DOES THE SURGEON EXPECT OF HIS HOSPITAL?

Surely, the surgeon should be entitled to a hospital with more than merely a well-planned operating room, able assistants, a capable laboratory. Dr. Walter Alvarez a few years ago delivered a talk on "The Pride of the Physician in His Profession." Basically, there must also be a pride of the surgeon in his hospital if he would be happy. A pride not alone in its appearance, its equipment, and its bed capacity, but in its moral standards, its position in the community, the capacity not of its beds but of its heart. And the heart of the hospital is the "humanitarian spirit in which the best care of the patient is always the primary consideration."

I should expect my hospital, then, to be not only a place of work but a place to serve—a place to work for the betterment of my private patients, but no less one in which I have a ward service where I am free to serve for the joy of working and the accrual of knowledge. I would wish for an opportunity to teach the interns and nurses some of the truths as I have learned them and would expect their cooperative help in return. "Tell it not in Gath," but, last, I would pray for a board of directors mindful of its duty to the community and appreciative of my labors, which would uphold my arms and offer every opportunity within its power to further the art of surgery.—*Paul S. Lowenstein, M.D., in Modern Hospital*

THE CARE OF SOFT TISSUE INJURIES

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THE soft tissues" is a term which has by common usage come to mean all those structures external to the skeleton and the internal organs. These tissues, because of their superficial location, are injured more frequently than any other. Many such injuries are of such minor character that the patient attends to them himself; some are so serious that they may permanently destroy important functions.

Since earliest times the treatment of wounds and the factors which influence their healing have been of primary interest to all surgeons. This interest is, of course, increased during times of war when great numbers of soft tissue injuries must be treated, at times under rather adverse conditions, and it is in such times that improvement in the methods of treating wounds may well be expected to occur. However, in order that we may be capable of critically judging new proposals and technics for the treatment of wounds, it is necessary that we have a thorough understanding of the fundamentals of wound healing. There are many factors of a general rather than a local nature which influence wound healing. Some of these are age, diet, local infection, and possibly hormones. It is well known that wounds heal more rapidly in the young than in the aged. There is evidence that avitaminosis and hypoproteinemia slow wound healing. Distant infection may at times cause infection in a wound that is quite remote. But these general factors are of no practical importance in the treatment of accidental wounds in healthy patients.

The mechanism of wound healing is, in essence, the same in traumatic wounds as it is in those made with surgical intent. In the surgical wound the surgeon is able to eliminate or at least to minimize some of those factors that are unfavorable to wound healing and to decrease the extent of bacterial contamination. Wound infection has always been considered the most important factor in causing delay in wound healing, but one must remember that the pathologic process of repair and the local response to infection are identical and are both recognized under the term "inflammation." It is well known that some infected wounds heal as rapidly as similar clean wounds do. After the excision of a carbuncle, the wound may heal as rapidly as a clean wound of like extent does. Many surgeons have concluded, from their own observations that simple surface infection does not primarily deter wound healing, and it is this observation that has undoubtedly caused a certain school of surgeons to become antiseptic nihilists. However, it is not primarily because of the effect on the local wounds that infection is to be feared but rather because of infection generally. Anaerobic infection, if locked in a closed wound, may even cause loss of life, and pyogenic infection may result in widespread cellulitis or septicemia.

There are certain local mechanical factors more or less under the direct control of the surgeon which can in themselves delay wound healing even in the absence of infection. Moreover, it is known that inattention to these various factors predisposes to infection, with its effect on wound healing. These adverse factors are:

(1) Foreign bodies. Not all foreign bodies will prevent wound healing, but large or numerous foreign particles near the surface will prevent healing until they are either absorbed or cast off.

(2) Devitalized tissue acts as a foreign body until it is absorbed or sequestrated, and in the depths of a wound it is a nidus for infection.

(3) Trauma will delay wound healing. This is well illustrated in wounds of moving parts which are not adequately sutured or splintered. Surface healing is often interfered with by the trauma caused by removing dressings which are adherent and thus disturbing regenerating epithelium.

(4) Dead space, even though uninfected, will increase the volume of a wound and thus increase the time required for healing.

(5) Tension. Any wound closed under tension is predisposed to infection because of the damage to blood supply and the subsequent necrosis which may occur.

(6) The accumulation of exudate under tension after the wound is closed, such as hematomas, will in the same manner as closure under tension delay wound healing by decrease in local blood supply. The necrosis which may result tends to cause infection. It would seem, then, that the problem of wound healing is primarily a mechanical one, for not only does inattention to these various mechanical factors delay healing but if they are not adequately provided for, infection is invited.

Promptness of wound healing is desirable, because not only is the period of illness and disability decreased by a wound that heals promptly but also a wound which heals by first intention

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produces much less disabling scar tissue than does a wound that heals by the slow process of second intention. The ideal would be to convert every accidental soft tissue injury into a wound similar to that made with surgical intent. This, of course, is not possible in all instances, but it should be the ideal to strive for, and in many instances what appears to be a wound which must be left open to heal can be, by careful surgery based on the factors above, converted into a wound which will heal primarily. It cannot be overemphasized that this objective can be attained only by meticulous attention to all details of mechanical care of the wound, for, if any one factor is not accounted for, disaster may occur, either as a systemic infection which may endanger life or as a local infection which will seriously prolong healing.

The treatment of soft tissue injuries should then be directed objectively toward the solution of the mechanical problems just enumerated. Such treatment naturally falls under well-defined headings directed toward the prevention of these unfavorable factors.

(1) Cleansing. All soft tissue injuries should be thoroughly cleansed. There is no antiseptic application that takes the place of thorough mechanical cleansing. The wound should be thoroughly washed under aseptic conditions. The best method of cleansing is to wash the wound and surrounding skin thoroughly with a mild soap and sterile saline. A heavy lather should be worked up and the wound thoroughly washed for a period of at least ten minutes. The lather can be increased by the use of half-and-half hydrogen peroxide, 1 per cent, with soap. The wound should not be scrubbed with a brush since this increases the trauma, but soft gauze should be used. The objective of the soap and saline scrub is to remove all foreign bodies as well as all torn off tissue. After the soap washing, the wound should be irrigated thoroughly with a running stream of saline. Following this, a meticulous inspection of the wound for foreign bodies is made. No antiseptic is applied after washing, for there is no known application which does not damage, to a certain extent, the exposed raw tissue.

(2) The removal of devitalized tissue. "Débridement" is a word which is glibly used but rarely practiced in the true sense. Too often it is taken to mean a haphazard excision of ragged skin edges and a clipping away of obviously dead tissue. Débridement is intended to convert a contaminated wound into a surgical one. This cannot be accomplished in every wound because of the involvement of vital structures, but in certain locations it can be practiced. After thorough cleansing, the soft tissue injury is packed with sterile gauze. A circumferential incision is then made around the wound and the entire contaminated wound lifted out as a core. This is done without penetrating into the accidental wound cavity and the resulting wound is one which as nearly as possible approximates a surgically made incision.

(3) Hemostasis. Control of bleeding was probably the first principle of wound care practiced by surgeons. In wound care hemostasis is an important factor in bringing about uninterrupted healing. All bleeding points must be clamped and ligated with fine suture material. There are some surgeons who believe that nonabsorbable material can be safely used in contaminated wounds, and in certain instances we accept this as being practical, but if there is any doubt as to the cleanliness of the wound, then catgut ligature material is favored. In either instance a minimum of ligatures should be used, for they themselves act as foreign bodies. For this reason only the finest catgut is used, in sizes three to five zero. Capillary ooze should be controlled before the wound is closed. This can be done efficiently by the application of warm packs held under some pressure against the wound surfaces. Hemostasis in all traumatic wounds should be so complete that drains are unnecessary.

(4) Closure. In these days of military surgery the closure of soft tissue injuries is a debatable point. There is, I believe, no question that if the wound can be closed with safety, closing it is better practice than leaving it open to granulate. The word "safety" is used advisedly because there are certain wounds in which closure cannot be done safely since to do so would violate the principles that we have already enumerated. The wound in which there is such extensive injury that débridement cannot be satisfactorily carried out, the wound in which there is such great loss of tissue that tension would occur if it were closed, the wound that is attended to later than six hours after its inception, and the wound, perhaps, that is attended to by a person without sufficient experience to have sound surgical judgment are safer left open. If, in the judgment of the surgeon, the wound can be closed, the closure must not violate the fundamental mechanical factors. The suturing of the wound should be carried out with fine interrupted stitches. Continuous sutures introduce more foreign material into the wound than is necessary and all running stitches tend to constrict the blood supply so that there is a moderate amount of tissue devitalization. Suture material should be of small size, for it has been amply demonstrated that the tensile strength of the sutured tissues is not so great as the strength of the larger sizes of catgut

or the heavier strands of nonabsorbable material. Some soft tissue injuries received under clean circumstances and by a sharp cutting force, such as that of broken glass, can be safely sutured with nonabsorbable interrupted sutures of either silk or cotton. More extensive wounds with contusion of edges and partial devitalization of surrounding tissues received under dirty conditions are more safely sutured with very fine catgut. In any event, the closure of the skin edges should be carried out with interrupted stitches of nonabsorbable material. In most locations either silk or cotton can be used for this purpose, but about the face, where scarring must be kept at a minimum, horsehair is a preferable material because it has so little tensile strength that it cannot be tied under tension and because it is impervious to moisture absorption.

(5) Immobilization. Soft tissue injuries of any extent heal more promptly and with less discomfort to the patient if the part is immobilized. This fact is not well appreciated, but it is true that immobilization of soft-part injuries is just as valuable as the immobilization of wounded bones. If the injury is on an extremity, the joints above and below the injury should be immobilized by plaster splints. In addition, the dressings should be of the compression type. This dressing consists of several layers of sterile surgical gauze over which either sea sponges or mechanics waste is applied in order that the dressing will be quite thick. A gauze roll or elastic type of bandage, such as ace bandage or stockinette, is then used to supply moderate pressure over the part. Compression is likewise a principle that is not well appreciated in the treatment of soft part injuries. It aids in fulfilling many of the criteria already mentioned. It tends to prevent capillary ooze and hematoma formation, and to a certain extent it provides immobilization. It prevents lymphedema and the accumulation of exudates in the wound and, if there are partly avulsed areas of the skin and subcutaneous tissues that have questionable circulation, compression prevents venous accumulation of blood and subsequent necrosis.

(6) Infrequent dressings. If the patient is comfortable and if there are no signs of infection, such as mounting fever, leukocytosis, drainage, or odor, then the immobilizing dressing should be disturbed infrequently. Frequent change of dressing traumatizes the healing wound, disturbs immobilization, and affords a renewed opportunity for the introduction of infection. The healing period of a soft tissue wound is, roughly, two weeks and, unless there are signs pointing to suppuration of the wound, there is no need to change the dressing originally applied during this period.

We shall now consider the various types of soft tissue injuries and briefly outline the treatment based upon the surgical principles that we have been discussing.

Abrasion.—This is the simplest of soft tissue injury. The injury may be extensive, but it is never deep. There are always sufficient epithelial remnants left to heal the area completely. Treatment consists of thorough soap-and-water cleansing under aseptic conditions. Particular attention must be paid to this step if the abrasion has occurred where carbon particles might be present. Such injuries are those received by a fireman around a furnace where there is soot, a roofer working on an asphalt roof, or a mechanic working about a greasy machine. Abrasions received under such conditions are apt to have carbon particles ground into them and, if these are not entirely removed, the abrasion when healed will be blue in color and will resemble a tattoo mark. These are particularly disfiguring when they occur about the face. At times these particles are ground so deeply into the derma that they can be removed only by actual shaving of the deeper tissues. Cleansing is followed by thorough irrigation with sterile saline solution. The wound is then dried with sterile gauze or with a stream of warm air from a dryer such as those used by hairdressers. One thickness of fine meshed vaselinized gauze is applied smoothly over the abraded areas and a compression dressing and an immobilizing splint are applied. If this dressing is disturbed during the first week, it will be noted that its removal causes bleeding due to the tearing away of thin regenerating epithelium. If there are no signs of infection, it is best to leave such a dressing undisturbed for from ten days to two weeks.

Contusions.—A contusion is an injury of the soft parts by blunt force of sufficient severity to injure the tissues deeply and yet not break the skin. In such injuries large hematomas may develop because of rupture of veins in the deeper tissues. As this pool of blood forms, tension occurs and may proceed to such a point that there is diminution in blood supply of the overlying skin. This may progress to actual necrosis with loss. If the patient is seen immediately after a severe contusion, hematoma formation can often be prevented by the simple application of an efficient compression dressing. If a large hematoma has already developed by the time the patient is treated, the hematoma should be evacuated, either by aspiration under aseptic conditions or by actual incision and evacuation of the clots and fluid blood. It goes without saying that such treatment should be carried out in an operating room where bleeding points may be searched for and ligated. Usually it is

not wise to allow a large hematoma to absorb spontaneously. One can never foretell whether tension will progress to such a point that necrosis will occur and although many hematomas will absorb, there are nevertheless two embarrassing things which can occur if this course is followed. As absorption of the hematoma occurs, fibrosis follows and, if the hematoma is about muscles or tendons, this fibrosis may bind moving structures together so that permanent disability occurs. On a number of occasions we have seen a permanent cyst-like cavity remain after the spontaneous absorption of a hematoma, and this cavity permanently fills with serous fluid. Once such a cyst has formed it can be obliterated only by surgical destruction of its lining. In brief, the entire problem in the treatment of a contusion is to prevent subcutaneous bleeding, or if the bleeding has occurred, to evacuate the pool of clotted and fluid blood. Such treatment will prevent necrosis of tissue which occurs from tension and will prevent any disability that may follow the fibrosis of absorption.

Burns.—A discussion of the treatment of burns is not within the compass of this report, but we should like to point out that a burn is a surgical wound that in many respects is no different from other soft tissue injuries. The local treatment of the burned area should be based on the same principles as the treatment of other soft tissue wounds—namely, thorough cleansing, the removal of devitalized tissue, immobilization, and infrequent change of dressing. The Allen-Koch treatment of burns, which is based upon these principles is ideally efficient in the treatment of second-degree burns. As yet there is, in our opinion, no ideal treatment of extensive third-degree burns. In an attempt to solve this problem and to make the treatment of third-degree burns more nearly conform to the fundamental principles of wound treatment, we have completely excised them at once and skin-grafted these areas of excision. This method of treatment is very satisfactory in third-degree burns of 20 to 30 per cent of the body surface, but, unfortunately, it cannot be used with complete safety in very extensive ones. But it is, we believe, a step in the right direction toward the conception of the treatment of all burns as surgical wounds.

Lacerations.—A laceration is a simple incised and contaminated wound in which there is no tissue that is devitalized or damaged. In general, lacerations are wounds made by sharp, clean instruments through a skin which is not dirty and with relatively little injury to the surrounding tissues. Such wounds, after thorough cleansing and irrigation, if seen within six hours after the accident, can be safely closed without débridement. In this connection it is well known that such simple incised wounds about the face and head may be safely treated by primary closure after a much longer period of time has elapsed than is the case when such wounds occur in other parts of the body. If a simple laceration without devitalization of tissue is seen twelve hours or longer after injury, it can be treated by delayed primary closure. Up to the point of closure these wounds are treated in exactly the same manner as those seen within six hours; that is, the wound is thoroughly washed with soap and water, foreign bodies are searched for, and the wound is copiously irrigated with normal salt solution. Following this, the wound may be either frosted with one of the sulfonamides and loosely closed, or it may be packed open with moist saline gauze and protected with a dressing for twenty-four or forty-eight hours. If, on the removal of the pack, the wound appears healthy and uninflamed, it is closed as though no delay had occurred.

Extensive Soft Tissue Injuries.—It is in this type of wound that most trouble is encountered, both from systemic and local infections and also in healing with disability and loss of function. The wound is often caused by both sharp and blunt forces, and as a result there may be loss of tissue, devitalization of the wound edges by contusion, and heavy contamination. After thorough cleansing and removal of foreign bodies, débridement in the true sense—that is, "wound excision"—is carried out. If at all possible the wound is lifted out in mass. In these wounds severance of vital structures makes ideal débridement difficult, but all surfaces of the wound except for severed nerves and tendons and fractured bones can be removed. If fractured bones extend into the wound, torn off or loosened periosteum must be sacrificed. Soiled cortical bone can be removed with a chisel, starting at the clean end of the bone and working toward the fracture site. Severed nerves and tendons are sutured with silk. It is rare that these extensive wounds can be closed without violating the principle of closure without tension. If cortical bone or tendons are not exposed, even very extensive wounds can be "closed" by the application of split-thickness skin grafts so placed as to cover the raw surface entirely. This type of closure does not violate sound surgical principles, for if infection does occur, the grafts will not take and drainage is possible. If the condition of the patient does not warrant the added time necessary to skin-graft the wound or if facilities are not available for carrying out this procedure, then the wound may be frosted with sulfanilamide and left open, or it may be packed with vaseline gauze. In the event that any one of these methods is used, a

snug compression dressing should be applied and a plaster encasement made to insure complete immobilization. This dressing is not disturbed for weeks unless there is an unexplained rise in temperature or abnormal pain. It is our considered opinion that if the circumstances are propitious and the surgeon experienced, many of these wounds which are left open to heal by second intention can be safely closed by the immediate application of skin grafts.

Partial and Complete Avulsions.—An avulsion differs from the wounds just discussed in that even though there is wide loss of tissue, there is often little damage to deeper structures and little devitalization of the wound surface and edges. Avulsions occur most commonly when the clothing of a worker is caught in the gears of a machine and the skin and subcutaneous tissues down to the deep fascia are peeled off the muscle. In some instances the tissues are lost at the scene of accident; in others, they may still be hanging by narrow pedicles. If the tissues are lost, these wounds can be safely grafted after thorough cleansing. Much time is saved for the patient and prolonged disability is often prevented by immediate grafting rather than waiting for the area to granulate and form a scar base which will contract. The type of graft used is the split-thickness graft, which can be cut by hand or with the dermatome. These grafts should be applied so that they entirely cover the wound. The objective is to secure prompt, complete epithelialization of the wound and in this way prevent or minimize scar tissue contracture. In this connection we should note that only grafts of skin from the patient take permanently. Grafts from other persons, even if the blood groups are matched, do not persist. They may in many instances take beautifully at first, but they are always lost in three to five weeks.

The more common type of avulsions is one in which the tissues are widely torn away but still left attached by a pedicle. In these cases, if the flap of torn skin and subcutaneous tissue is merely sutured back in place, there is very often death of at least the distal half of the flap. Presumably this occurs because of thrombosis of veins. Arterial blood is continually pumped into the area, but it cannot escape. Venous engorgement of the flap occurs, the tissues turn purple, and if incised, dark blood escapes. From this point gangrene gradually ensues, and the patient is left with an infected necrotic wound. The possibility of this sequence of events can often be anticipated if the distal portion of the avulsed flap at the time of injury is cyanotic and cold. In such instances it is better to detach the avulsed tissue completely, débride the wound, excise the subcutaneous tissues from the avulsed flap, and reapply the skin as a free full-thickness skin graft. If a compression dressing is applied over this and the part is adequately immobilized, a high percentage of successful growth can be obtained. Furthermore, there is a smaller loss of tissue than there is if the flap is left attached and sutured back in place. This is, of course, an operating-room procedure under strict asepsis. Any infection will cause failure of a full-thickness skin graft to take.

Amputation of Parts.—Occasionally one is presented with the problem of what to do when the tip of a finger, a portion of an ear, the tip of a nose, or some other part is amputated traumatically. If the part is available, is not more than one-half inch long, and has a broad base, there is some prospect of success in immediately suturing it in place and absolutely immobilizing it. We have successfully sutured back in place the tip of a finger amputated through the base of the nail and have seen it completely survive. Success has been reported by others in reattaching a completely amputated tip of the nose. It will be noticed that in both these locations the base of raw tissue through which the amputated part can secure nourishment is broad. It is useless to suture back in place an amputated portion of an ear since the attachment is so narrow that little blood supply can get into the amputated part. However, the cartilage of the severed portion of the ear should always be saved. This can be done by removing the skin and soft tissues from the cartilage and then imbedding the cartilage under the skin of the patient, preferably in a location close to the ear. At a later date this preserved cartilaginous framework can be used in the reconstruction of the missing part. The preservation of a resutured amputated part is a race between autolysis of tissue in the amputated portion and the speed with which blood vessels can grow into it from the attachment at its base. For this reason it is useless to suture back in place large amputated parts.

Wounds with Bones or Tendons Exposed.—Bones and tendons act in much the same manner if they are left exposed in a wound. Cortical bone and tendon that is not covered by tendon sheath, dry and become necrotic if they are exposed to air. Ordinarily the problem of exposed bone is not so difficult as the problem of exposed tendon. A portion of the bone is usually still in contact with soft tissue and will live. Following ultimate healing of the wound, the continuity of the bone will be re-established. However, if tendons are lost, permanent disability occurs. For this reason it is wise to attempt to cover exposed tendon with skin if one can do so without violating surgical principles. Unfortunately, free skin grafts do not take over tendons. If

there is sheath still present over the tendon, then in a fair percentage of instances, free grafts will take, but if the tendonous fibers are exposed the blood supply is not great enough to nourish free grafts. In such cases it is wise to cover the exposed tendon immediately, either by shifting the flaps from the edges of the wound or by the actual transplantation of a flap from some other location. This, of course, means immobilization of the part until the flap has securely grown into place and the pedicle can be severed, which is usually a matter of at least three weeks.

Puncture Wounds.—In civil life there are often wounds made by sharp clean instruments, such as a stab wound with an ice pick, a pistol bullet, or the small puncture made by the sharp end of a bone compounded from within, which, because of the clean conditions under which the wound occurs, can be treated only by local cleansing of the puncture wound. These wounds can usually be cleansed, irrigated, and closed. Bullet wounds more often have to be excised and left open. It is, of course, well known that the conditions under which the wounds occur determine the type of treatment necessary. In general, perfectly clean puncture wounds made with sharp instruments under clean conditions need not be excised and left open. In all other puncture wounds and in any in which there is the possibility of foreign material in the depths of the wound, the tract should be excised, thoroughly cleansed, and then left open or packed with vaseline gauze or gauze on which sulfanilamide has been sprinkled. The great danger in puncture wounds is that anaerobic organisms may be sealed off in the depths of a wound under ideal conditions for proliferation.

Summary

In conclusion we must say that the principles of (1) cleansing, (2) débridement, (3) absolute hemostasis, (4) closure without tension or dead space and with the use of fine interrupted suture material, (5) immobilization, and (6) infrequent change of dressings are not new in the treatment of wounds. They have been advocated in part by every thinking surgeon since the time of Paré. They are, however, time-tested and fundamental, and it requires repetition to help us maintain a proper perspective and a judicial attitude toward new forms of wound therapy that are constantly urged upon us for consideration and adoption.

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THE COUNTY SOCIETY

The responsibilities of the county medical society are always great but become even greater in a time of emergency. The county societies never have needed to be more alert to and in touch with the medical needs of the county than at the present time. The society should set the standards for medical service and be the source of scientific information and advice not only to its members but to the public in the county. The county society holds an important place in medicine and in the nation at all times but it is emphasized in any time of emergency as in wartime.

More than ever before the county society should include in its membership all reputable physicians within its province and it should be strongly organized.

The importance of the county society and the continuation of meetings of county societies during wartime was stressed by Col. Fred W. Rankin, president of the American Medical Association, in an address before the Annual Conference of Secretaries and Editors of State Medical Associations in Chicago. Many national organizations of physicians and also some state associations have canceled their annual sessions during 1943, necessitated by the difficulties of transportation and the considerable demand on the time of the physician. Colonel Rankin pointed out that such reasons do not prevail in regard to meetings of county medical societies.

Colonel Rankin stated that the county medical societies are the organizations most concerned with the planning and support of the work of many agencies concerned in the war effort and that requests of the Red Cross, the county and state health departments, the welfare agencies, the groups charged with the organized treatment of venereal disease, the care of the crippled and the tuberculous and of other agencies which undertake important responsibilities during the emergency go to the county medical society.

Furthermore, the county medical society also has the responsibility for recommendations to the Procurement and Assignment Service, the organization of civilian defense, the blood donor program, and, sometimes, for recommendations on the rationing of tires, gasoline, fuel, and food.

Moreover, physicians require during this time, perhaps more than at any other, the mental stimulation of interchange of medical information. It is more important than ever that at the present time county medical societies be most active and supplement as far as possible the work of national associations.—*Editorial, J. Missouri State M. A.*

THE BIRTH OF MEDICAL EDUCATION IN UPSTATE NEW YORK

T. Wood Clarke, M.D., Utica, New York

WHEN, after Queen Anne's War and the building of Fort Hunter, our pioneer ancestors swarmed up the Mohawk Valley, and again when, after the Revolution, they invaded the Oneida country and from there spread north and west to build up new cities in the wilderness of northern, central, and western New York, they were in many ways entirely self-sufficient. They built their own cabins, developed their own farms, shot their own game, and caught their own fish. As long as they retained their health, they could take care of themselves with rifle, plow, and axe. Life was hard, but it was possible. When illness overtook them, however, they were in a sad predicament. Doctors were few and far between.

As the settlements grew, though, medical men followed the pioneers. While a few of these were men of fine education, graduates of the great European universities, many had little or no training. An ambitious young pioneer would come to the wild western country—for everything beyond Albany was considered "the West"—and open a trading post. To the usual stock of hardware, clothing, boots, hats, sugar, and tobacco he would add a few simple drugs. These he would sell to his suffering neighbors. Soon he would begin calling on them in their homes to administer the drugs, and, in a remarkably short time, would add the prefix "doctor" to his name and become the owner of a more or less flourishing practice. Some had a few months' apprenticeship in another physician's office. Still others were frank quacks, extolling wonderful cure-alls supposed to be secret formulae acquired from the Indian. Of laws there were none; of rules of practice there were none; and of means of protecting the unfortunate patient there were none.

In 1800 there were but five medical schools in North America. In 1765 a school had been opened in Philadelphia, later to become part of the University of Pennsylvania, and in 1768 King's College, in New York, whose name after the Revolution was changed to Columbia, had added a medical department. These had been followed by Harvard in 1783, Dartmouth in 1798, and Transylvania, in Lexington, Kentucky, in 1799.

In 1792 a young man of 20, Westel Willoughby, recently licensed by the Connecticut State Medical Society, came up the Mohawk Valley and turned his face northward to the Royal Grants, the territory between the East and West Canada Creeks, now Herkimer County, which at this time was rapidly becoming populated by settlers of both German and English ancestry. He settled first in Norway, but later moved to Newport on the West Canada Creek. He soon made his presence felt in the young community, was elected Judge of the Court of Common Pleas in 1805, went to the State Assembly in 1807, and to Congress in 1814.

A few years after Dr. Willoughby settled in Norway the Rev. Caleb Alexander, a Presbyterian missionary, a graduate of Yale College, came to the village of Fairfield. At that time Fairfield, a flourishing and rapidly growing settlement situated at an important crossroads high in the hills north of Little Falls, was the business and political center of the Royal Grant lands.

Many of the post-Revolutionary settlers of this territory were New Englanders of culture and education. As their families increased they felt the need of a school in which their children could be educated and appealed to Mr. Alexander and to Dr. Willoughby to organize one. The result was that in 1803 the Fairfield Academy opened its doors and began a career which for over a hundred years was to have a marked influence on the education and culture of New York State. Mr. Alexander became its first president.

By 1809 the Academy had attained such success that it added to its equipment a stone building to be used as a laboratory. In this Dr. Josiah Noyes, a graduate of Dartmouth, delivered lectures on chemistry and Dr. Jacobs, of Canandaigua, on anatomy. These lectures were attended not only by the students of the academy but also by neighboring physicians as well. They were so popular that the board of trustees, of whom Dr. Willoughby was an influential member, determined to form a regular medical school. With this thought in mind Dr. Noyes wrote to Dr. Lyman Spalding in Portsmouth, New Hampshire, under whom he had studied at Dartmouth.

Lyman Spalding was born in Cornish, New Hampshire, June 25, 1775. Dr. Nathan Smith, of that village, took an interest in the boy and directed his education. Young Spalding studied

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 5, 1943.

medicine with Dr. Smith and later, after graduating from the Harvard Medical School, returned to his preceptor and assisted him in founding the medical department of Dartmouth in 1797. For some years Drs. Smith and Spalding comprised the entire faculty of the school, Dr. Spalding teaching anatomy and chemistry and Dr. Smith all other branches of medicine.

In 1799 Dr. Spalding resigned from Dartmouth, and moved to Portsmouth, New Hampshire, where he soon became an outstanding figure in the community. When Waterhouse obtained his first samples of Dr. Jenner's newly discovered cow-pox vaccine for smallpox, Dr. Spalding became his representative in Portsmouth, and for a number of years held a monopoly on vaccination in that part of New Hampshire, paying Dr. Waterhouse 25 per cent royalty on all funds received for vaccinating.

In his letter to Dr. Spalding, Dr. Noyes described the Fairfield Academy in these words: "It is expected that the Academy and Medical Institution connected will take the name of 'College' soon. The instruction at present is about the same as is given in the most respectable colleges in the United States. The number of students besides Medical Students is generally from 90 to 115. The Rev. Caleb Alexander is the Principal. There is, besides, one Tutor and an assistant who attends to the lower branches. We have three buildings, one of stone called the Laboratory, containing 14 elegant rooms. There are two lecturing rooms, one for Anatomy, and the other for lectures on Chemistry. These two rooms perhaps are better than any others built for the same purpose in the United States, except Philadelphia. Our Chemical Apparatus is more complete than any in the City of New York, and the Anatomical Museum is equal to Dr. Smith's at Dartmouth." He then went on to offer Dr. Spalding the chair of anatomy and invited him to visit the school.

Dr. Spalding accepted the invitation and in October, 1810, set out for Fairfield. On his way he stopped over in Boston and persuaded his friend, Dr. George Cheyne Shattuck, to go to Fairfield to lecture on the theory and practice of medicine. Each gave a six weeks' course of lectures which were so successful that Dr. Spalding was offered the chair of anatomy and surgery and Dr. Shattuck that of the theory and practice of physic and physiology. Shortly after this Dr. Willoughby was made professor of obstetrics. These, with Dr. Noyes, who retained the chair of chemistry, made up the medical faculty of the Fairfield Academy. The session held in the autumn of 1811 by these four professors was eminently successful.

Even before this session was held the ship of Fairfield was sailing through dangerous waters. Dr. Jacobs, who had been superseded by Dr. Spalding as professor of anatomy, had returned to Canandaigua and was endeavoring to found a medical school there. Rev. Eliphalet Nott, the president of Union College, was making every effort to persuade Fairfield students to go to Union, even going so far as to have grappling hooks thrown onto the boats of students headed up the Mohawk for Fairfield, and mooring them to the docks at Schenectady. The most serious opposition, however, came from Utica and Clinton.

The trustees of Oneida Academy at Clinton were making strenuous efforts to receive a charter as a college and to have a medical department in Utica. General Jonas Platt, one of the backers of the Oneida Academy project, a political power in the State, induced the legislature to withhold the appropriation of $5,000 which it had previously given to Fairfield, and to favor the project of the Oneida Academy, with the result that early in 1812 a collegiate charter was issued to the Clinton school under the name of Hamilton College. The Hamilton trustees immediately appointed the entire medical staff of the Fairfield Academy—Drs. Noyes, Shattuck, Spalding, and Willoughby—to professorships at Hamilton, and intimated to Mr. Alexander that the position of president was awaiting him.

Promptly, without giving the trustees even a day's notice, President Alexander, Professor Noyes, and a tutor, Mr. Montague, resigned their positions at Fairfield and accepted appointments at Hamilton. Mr. Alexander wrote to Drs. Spalding and Shattuck explaining the situation and urging them to follow their example. Dr. Willoughby seems to have accepted the appointment at Hamilton without resigning from Fairfield. Upon receipt of Mr. Alexander's letter, Dr. Spalding wrote to Dr. Shattuck, urging him to stick to Fairfield, and to the deserters, refusing to join them in the change. To Judge Smith, one of the trustees of Fairfield, he wrote that "So long as Fairfield stands by me I will stand by Fairfield." Dr. Shattuck, however, had decided that lecturing in central New York interfered with his practice in Boston, resigned from Fairfield, and refused to accept the appointment from Hamilton.

The firm stand taken by Dr. Spalding undoubtedly saved the school at Fairfield. One of the most important factors which induced the legislature to charter Hamilton College was the information given to them that both Dr. Spalding and Dr. Shattuck would accept professorships there. When they refused, the whole picture changed. Hamilton abandoned the plan of having a medical department, and the legislature

issued a charter to the Fairfield Academy for a medical school to be called the College of Physicians and Surgeons of the Western District of New York. Dr. Willoughby returned to the fold as professor of obstetrics. Dr. James Hadley, a graduate of Dartmouth, the grandfather of President Arthur Twining Hadley, of Yale, was made professor of chemistry in the place of the deserting Dr. Noyes, and Dr. Spalding taught everything else—anatomy, medicine, and surgery. In April, 1813, Dr. Spalding was elected to the presidency. While he retained the chair of anatomy and surgery, Dr. John Stearns was appointed to the chair of the theory and practice of physic. Dr. Stearns, after graduating from Yale and doing postgraduate work in Philadelphia, had settled in Albany and then in Saratoga County. He founded the Medical Society of the State of New York, served for many years as its secretary, and four times was elected to the office of President. Later he moved to New York City, where he organized and served as the first president of the New York Academy of Medicine.

The success of any school depends upon the quality of its teachers. With these four men on the faculty and no rival medical school nearer than New York City and Boston, the College of Physicians and Surgeons of the Western District of New York grew with astonishing rapidity, so that, when it reached its zenith, in 1833, with an enrollment of 217 students, it was, except for the school in Philadelphia, the largest medical college in the United States. Its students came from as far east as Maine and as far west as Illinois. New Jersey, Pennsylvania, Michigan, Vermont, New Hampshire, Connecticut, and Ohio all sent their quotas. As time went on, more and more came from north of the border in what was then known as Upper Canada.

Compared with the present-day requirements for admission to medical schools, those of Fairfield were simple. The student, if he had no college education, must have an acquaintance with Latin (the intimacy of the acquaintanceship is not specified), and he must have a correct knowledge of English grammar and natural and experimental philosophy. He must also sustain a fair moral character. How fair this must be was also omitted from the bylaws. To be candidate for the degree of Doctor of Medicine he must have studied for three years under a reputable physician and attended the college for two terms of twelve weeks each. The length of the terms was later increased to sixteen weeks. If he fulfilled these requirements, he was examined by the members of the faculty in anatomy, surgery, obstetrics, chemistry, materia medica, minerology, and the institute of medicine. He must also present and defend a thesis. If the student succeeded in these, the faculty of the school recommended him to the Regents of the State of New York, who conferred upon him the degree of Doctor of Medicine, which carried with it the license to practice.

The members of the faculty, except for Dr. Hadley, and, later on, Dr. Delamater, did not live at Fairfield. While Dr. Willoughby resided in the neighboring town of Newport, Dr. Spalding, during his first years in the school, lived in Portsmouth, New Hampshire, and later, even when acting as president of the college, resided in New York City, while Dr. Stearns kept his home in Saratoga County. The college terms lasted through the months of October, November, and December. Dr. Hadley delivered one lecture each day during the three months. The other professors would come to the school at an appointed time, deliver two and sometimes three lectures a day for one month, and then either return to their homes to practice or, in later years, when medical schools became more numerous, go on to some other school for another course. In some cases these peripatetic teachers delivered lectures in as many as four or five colleges in a single winter.

The students enrolled for as many courses as they wished, paying from ten to twelve dollars to each professor for his course. After attending a course for two terms students were privileged to sit in on all future lectures without charge.

This system had two advantages: first, a student, who in many cases was already a practicing physician, might absent himself from his practice for only a few weeks at a time, taking one or two courses a year, and at the end of several years have attended enough to earn the coveted M.D. without seriously interfering with his practice, and, second, it stimulated the professors to their best efforts. The more interesting and useful the teacher made his lectures, the more students enrolled under him and the larger was his income.

While this entire setup, in the light of modern medical education, seems primitive in the extreme, it was a conscientious effort to raise the standards of medical practice of the time. This is well shown by the character and careers of the graduates of the school, among whom were numbered some of the leading medical men of the country. These included such influential persons as Dr. Charles Coventry, of Utica, president of the Medical Society of the State of New York, through whose influence the first state hospital for the insane in New York State was founded, and Dr. Asa Gray who, after graduating from Fairfield and teaching botany in the school, went

medicine with Dr. Smith and later, after graduating from the Harvard Medical School, returned to his preceptor and assisted him in founding the medical department of Dartmouth in 1797. For some years Drs. Smith and Spalding comprised the entire faculty of the school, Dr. Spalding teaching anatomy and chemistry and Dr. Smith all other branches of medicine.

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wooden chapel standing lonely and forelorn, four miles east and seven hundred feet above the little village of Middleville in the valley of the West Canada Creek. It is now used as a Grange Hall.

Discussion

Dr. Howard Dittrick, *Cleveland, Ohio* (by invitation)—There are many features of Dr. Clarke's paper which I should like to discuss, but I shall limit my remarks to the influence that the Fairfield school exercised over medical education in Ohio. The more one learns of these early medical schools, the more one respects the conscientious and efficient teaching that was done in such schools as Fairfield. Furthermore, the courage with which the graduates carried on amid pioneer conditions fills us with wonder and admiration. One of Fairfield's students who was unable to attend more than one term subsequently became a professor of surgery. A record of one of his morning operative clinics reveals that in addition to excision of a jaw and other general surgical procedures, he performed five eye operations.

The Fairfield influence in Ohio extended as far south as Cincinnati. Dr. D. A. Tucker writes me that Dr. Reuben D. Mussey, who was a professor in the Medical College of Ohio and who was the leading surgeon in the Middle West, taught at Fairfield one or two years before coming to Cincinnati. This would have been about 1836 or 1837.

However, it is the Western Reserve school which is especially indebted to this New York State School. In the early part of the nineteenth century there was a considerable settlement of Western Reserve by former residents of central New York State. In the little village of Chagrin on the south shore of Lake Erie near the mouth of the Chagrin River, a group of public-spirited citizens had a vision like that of the founders of Fairfield. Furthermore, there existed such a strong attachment to Fairfield that in 1834 they founded an institution which they named the Willoughby University of Lake Erie. Six weeks after medical teaching began they went even further and changed the name of the village to Willoughby. It was thought the new name would attract students because of the prestige of Dr. Westel Willoughby, the president of Fairfield Medical College, among the many graduates of that school in the Middle West. It may also have been true that, like present-day educators, the founders hoped for the sustaining financial interest of this wealthy physician.

The Willoughby school was patterned after the Fairfield Medical School, and several teachers and former students of Fairfield were members of the Willoughby faculty. Dr. Amasa Trowbridge, professor of surgery, and Dr. John Delamater taught in both schools simultaneously. Francis W. Walsh, another professor of surgery; Orson S. St. John, professor of materia medica, pharmacy, and medical jurisprudence; John Lang Cassells, the dean, were all graduates of Fairfield. Dr. George W. Card and Dr. John M. Henderson, successful practitioners of Willoughby and also two of the founders of the local school, had both studied at Fairfield. Dr. Horace A. Ackley, who taught surgery, Dr. T. W. Donavan, and Dr. George Jones had attended some sessions at Fairfield. In 1847, because of the rivalry of a recently founded school in nearby Cleveland, the Willoughby school was forced to move its equipment to Columbus. After three months its charter was canceled, and it was replaced by the Starling Medical School in that city. Later this school fused with another and became the College of Medicine of Ohio State University, which is still active.

As I have intimated, the troubles at Willoughby began with the founding in 1843 of the Medical Department of Western Reserve College. This year in Cleveland we are celebrating the centenary of this school, which is now known as the Medical Department of Western Reserve University. During the years 1843 and 1847 there was bitter rivalry between the two schools, which were only twenty miles apart. Such measures as processions, vitriolic newspaper articles, and even stealing students were probably similar to the methods taken by other schools to undercut Fairfield. Curiously enough, the action of the faculty members at Willoughby was also similar to Fairfield's experience with Hamilton College. Dr. John Delamater, Dr. Horace A. Ackley, and Dr. John Lang Cassells joined forces with the Cleveland group.

I have given the names of the professors of the Willoughby school who had been connected with Fairfield. In Cleveland, medical education had a similar origin. During its first year the faculty of the Medical Department of Western Reserve College had four teachers who had been associated with Fairfield. Dr. John Delamater taught in both schools. Dr. John Lang Cassells had graduated from Fairfield, while Dr. Horace A. Ackley and Dr. Jacob Delamater had been students there but had not graduated.

Dr. F. C. Waite, to whom I am indebted for this historical data, is publishing a book to appear later this year, entitled "The History of the First 100 Years of the Medical Department of Western Reserve University." It will contain a chapter showing the inter-relation of these early medical schools.

Among the material associated with medicine in these pioneer days, now deposited in the Museum of the Cleveland Medical Library, we have all the manuscripts belonging to a student who graduated from Western Reserve in 1846. Complete notes of lectures given by the professors throw much light on the teaching of that era. For example, one of the faculty had studied in Paris, and in teaching physical diagnosis he described the signs revealed by percussion and auscultation, the first time the new methods had been taught in the west. This was only about twenty years after Laennec's discovery, and France was a long way from the Western Reserve one hundred years ago.

Horace Ackley, the Fairfield student who became professor of surgery in the Cleveland school, was a dynamic force in this group. He was the first surgeon in Ohio to use ether as a general anesthetic.

to Michigan and then to Harvard and became world renowned as America's greatest botanist.

In 1815 Dr. T. Romeyn Beck succeeded Dr. Stearns as professor of the practice of medicine at Fairfield. In the year 1817, Dr. Spalding, then a resident of New York City, who was enjoying a rapidly increasing practice and was a trustee of the College of Physicians and Surgeons of Columbia University, resigned his presidency and professorship at Fairfield and was succeeded by Dr. Joseph White, of Cherry Valley, New York. Dr. Spalding remained in New York and attained national fame as the proposer and author of the first edition of the *United States Pharmacopœia*, the work which brought order out of chaos in the science of materia medica in America.

Dr. White, who was considered the greatest surgeon in the western district, soon split up the work done by Dr. Spalding and appointed his son, Dr. Delos White, professor of anatomy and physiology but served as professor of surgery until 1827, when he resigned that post and was succeeded by Dr. John Delamater. However, he retained the presidency of the college for five years more and was then followed by Dr. Willoughby, who held the presidency until the school closed.

In 1822 Dr. Delos White resigned the chair of anatomy and physiology because he could not get enough bodies to dissect, and was succeeded by Dr. James McNaughton. In 1839 Dr. Delamater was transferred from the chair of surgery to that of medicine and obstetrics, and Dr. Frank H. Hamilton was made professor of surgery.

Following its peak year in 1833 the prosperity of the Fairfield school declined rapidly. Many important influences were working against it. In 1835 the Geneva College, which later changed its name to Hobart, opened a medical department. To the east Albany was making strides medically. Dr. Alden Marsh, professor of anatomy and physiology in the Vermont Academy of Medicine at Castleton, Vermont, had been conducting private classes in anatomy and surgery in Albany since 1820. In 1831 he was joined by Dr. James H. Armsby. In 1839 these two, with the cooperation of other Albanians, obtained a charter for the Albany Medical College. In its early days before the Erie Canal was opened and railroads were built, Fairfield, though perched on the top of the hills above Little Falls, was as accessible as any other spot in upstate New York. With the coming of more rapid methods of transportation and with the railroads going directly to Geneva and to Albany, Fairfield was hopelessly handicapped. When the enrollment, which had increased from 18 in 1813 to 217 in 1833, dropped in six years to 101, it became evident that the competition of the new schools was too much for it. At the end of the fall and winter term of 1839–1840 the trustees voted to abandon the medical department and turn its buildings back to the Fairfield Academy. Drs. Delamater, Hadley, and Hamilton accepted appointments at the New Geneva school while Drs. Beck and McNaughton, who lived in Albany, became members of the school in that city. Dr. Beck attained immortality as the author of the first textbook on medical jurisprudence, the foundation stone which has served as a basis for all later works on the subject.

The College of Physicians and Surgeons of the Western District of New York, which, a few years before ranked so high among American medical schools and had done so much to raise the standards of medical practice throughout the Northern States and Canada, was a thing of the past.

The acquisition of the three famous teachers from Fairfield gave the Geneva school a great boom. In three years its enrollment had increased from 76 to 195. It was, however, doomed to the same fate that Fairfield suffered. In 1843 Dr. Delamater, with the assistance of two of his former students at Fairfield, Drs. Ackley and Cassells, founded the Cleveland Medical College, which later became the Medical Department of Western Reserve University and is this year celebrating its one hundredth anniversary. In 1846 three of its outstanding teachers, Dr. Hamilton, Dr. Charles Coventry, of Utica, and Dr. Austin Flint, Jr., organized the Buffalo Medical College. These diverted the students from the west and from Canada to the new schools, and the attendance at Geneva fell in twelve years to 12 students. From then on it had a precarious existence, and in 1872, two years after the University of Syracuse was opened, the school, its library, and its laboratories were moved to that city and became the Medical Department of the University of Syracuse. Later the Buffalo Medical College was incorporated into the University of Buffalo, and the Albany Medical College became part of Union College. All of these, however, as well as many of the medical schools of the Middle West, were the children and grandchildren of the College of Physicians and Surgeons of the Western District of New York at Fairfield.

After the medical school at Fairfield had closed its doors, the Academy continued its successful career, at one time as a coeducational institution of learning and later as a military school. Early in the present century this, too, was forced to disband. For years the old stone buildings remained empty and were finally torn down. The stone was used to build a state road. Today all that remains of this famous school is the old

Diagnosis

CLINICOPATHOLOGIC CONFERENCES

Fourth Medical Division of Bellevue Hospital

Date: July 1, 1943
Presented by: Dr. Max Trubek

Dr. Mary Finck: This was the first Bellevue admission of a 45-year-old white man who was in good health until three days prior to admission, when he developed chills and fever appearing several times daily. Two days later he developed left chest pain which was constant and did not radiate from the anterior chest. The pain was pleuritic in type. A "cigarette cough" that had been present for several months became more severe and was productive of small amounts of white sputum, which had never been blood-streaked. There were no gastrointestinal or genitourinary symptoms. The family history was negative. Past history revealed that the patient had been a morphine addict since 1911. He had taken the drug intravenously until eight months ago and had been taking 1½ grains daily subcutaneously since then. The remainder of the history was noncontributory.

On admission, the patient's temperature was 103 F.; pulse, 88; respirations, 22; and the blood pressure, 92/54. Physical examination revealed a slender, poorly nourished white man in no acute distress but who appeared chronically ill. There was no dyspnea, cyanosis, or orthopnea. The skin was clear. The pupils were round, regular, and equal and reacted to light and accommodation. Examination of the fundi was negative. The ears, nose, and throat were negative except for pharyngeal injection. There was bilateral cervical adenopathy with small, discrete, nontender nodes. The neck was supple, and the trachea was in the midline. The thorax was symmetric, with slight lag on the left. No rub was present. Examination of the left lung disclosed normal resonance throughout with bronchovesicular breath sounds and slightly increased voice sounds at the base. There were no rales. The heart was not enlarged. Regular sinus rhythm was present, and the second aortic sound was greater than the second pulmonic. A loud, rough systolic murmur was heard over the aortic and pulmonic regions. There was a questionable, short, diastolic murmur at the apex. No thrill was noted. The abdomen was soft, and no masses, viscera, or tenderness were palpable. Examination of the extremities revealed numerous scars from intravenous injections. No clubbing, cyanosis, or edema was noted. The reflexes were physiologic.

Laboratory Findings on Admission.—The white blood count was 12,300 with 83 per cent polymorphonuclears, 15 per cent lymphocytes, and 2 per cent monocytes. The hemoglobin was 11.0 Gm., with a red blood count of 5,000,000. A careful search of the blood smear failed to reveal any malarial organisms. The urine was of amber color, with specific gravity of 1.030, acid reaction, and a faint trace of albumin and sugar; microscopic examination was negative. The blood Wassermann was negative and the erythrocyte sedimentation rate was 2 mm. per hour. A roentgenogram of the chest revealed the heart to be enlarged in the transverse diameter, with interstitial changes and fibrosis at the roots of both lungs. An electrocardiogram revealed a PR interval of 0.20 second, a QRS of 0.08 second, and elevation of R-T segment in lead 2. There was sinus rhythm of average rate and activity suggested.

Course.—The patient ran a febrile course, the temperature ranging from normal to 103 F. daily, with occasional spikes to 104 F. Repeated smears for malarial organisms were negative. Repeated urinalyses were negative except for a faint trace of albumin. On May 14, 1943, the eleventh hospital day, blood culture was reported positive for Streptococcus viridans. Subsequent cultures confirmed this finding. On May 18, 1943, the fifteenth hospital day, it was noted that the systolic murmur over the precordium was definitely rougher in quality. A three-day trial of atabrine produced no response. The patient's course was steadily downhill, and on the twenty-first hospital day an increased harshness of the aortic murmur as well as pronounced apical systolic and diastolic murmur were noted. At this time one observer thought the spleen was palpable. The blood pressure remained low. Petechiae never were found, but a café-au-lait discoloration of the skin was observed by one examiner as developing some time after admission. An electrocardiogram taken on the twenty-first hospital day showed active changes with an increase of the PR interval to 0.27 second, a decrease of the T waves in lead 1, an inverted T in lead 4, and a marked incomplete auriculo-ventricular block.

It was decided to use massive doses of chemo-

John Delamater must have been a remarkable man. A peripatetic teacher, he taught in nine medical schools, and his courses involved every subject in the curriculum. He was equally skilled in diagnosis, internal medicine, surgery, and obstetrics, and was regarded as the foremost medical teacher of his day.

In the course of looking over his book of prescriptions written for his Cleveland patients in 1843, we conclude that he was a wise and careful physician, as well as being orderly and systematic in his methods. We obtain a passing glimpse of the ills of Cleveland's first families from his record of the remedies he used.

It is evident, therefore, that medicine in the Western Reserve derived lasting benefit from its roots in Fairfield. Reserve was blessed in being born of good stock, and we are happy to assure you that it has remained worthy of its distinguished heritage.

NEUROPSYCHIATRY IN THE ARMY

Under "Medicine and the War" in a recent issue of the *J.A.M.A.* appears a brief report of the establishment of a special school for neuropsychiatry under the auspices of the United States Army Medical Corps.

Psychiatric problems represent today some of the most important of those that confront our armed forces. In 1918 there were 7 men of each thousand discharged for psychiatric reasons, whereas in 1942 the rate was 4 per thousand. At the time of induction in 1918 only 20 men of each thousand were discharged for psychiatric reasons; now about 75 of each thousand are rejected for such causes. This does not mean that more men are now mentally unfit; our scientific methods have improved sufficiently in the interval to enable more accurate detection of such cases. The indications are that 30 per cent of the casualties now arriving from the war zones are psychiatric in character or have some well-defined psychiatric aspects. . . . .

The need for special consideration of neuropsychiatric problems was recognized early after our entrance into the war with the establishment of a committee for this purpose in the Division of Medical Sciences of the National Research Council.

In February, 1942, a Neuropsychiatry Branch was established in the Surgeon General's Office under Lieut. Col. Patrick S. Madigan, who had many years of experience in this specialty in the Regular Army. . . . .

Among the most important duties of the branch are (1) giving advice to the Surgeon General and other governmental agencies on neuropsychiatric matters, (2) recommending policies for the Army in neuropsychiatric matters, (3) inspecting neuropsychiatric facilities in hospitals and clinics, (4) making recommendations for circular letters and directives regarding neuropsychiatric matters, (5) reviewing neuropsychiatric information coming into this office, (6) maintaining a card index of location and qualifications of neuropsychiatric officers, (7) consulting with the personnel division and recommending assignments and transfers of neuropsychiatric officers, (8) reviewing and approving scientific publications submitted by neuropsychiatric officers, and (9) attending and participating in National Research Council meetings.

As this section of the Surgeon General's Office became oriented in its responsibilities, consultants were appointed to coordinate and supervise clinical and administrative neuropsychiatry.

Most important in this service has been the establishment of the School of Military Neuropsychiatry, which has already trained more than 120 officers. A neuropsychiatric unit at the Thirty-Sixth Station Hospital has been organized under the command of Lieut. Col. Ernest H. Parsons. This unit is functioning as a neuropsychiatric center in the European theater and is providing indoctrination instruction for newly arrived neuropsychiatric officers so that they may familiarize themselves quickly with the problems and case material. Especially qualified trained psychiatrists have been assigned to carry out planned mental hygiene programs at replacement training centers.

The question of morale is being met by liaison established between the Neuropsychiatric Branch and the Special Services Branch of the Army.

Finally, neuropsychiatry in the armed forces must be especially concerned with problems of delinquency. The crude methods of the past have given way to more humane and satisfactory handling of the problems of the homosexual. No longer is it necessary to subject cases that are so definitely in the medical field to the routine of military court martial.

The development of the Neuropsychiatric Branch of the United States Army Medical Department represents one of the most important achievements in the advancement of military medical science. All of those officially responsible merit commendation for their cooperation in the significant results that have already been secured.

THE GENTLE HAND

Parson: "Rastus, that's a fine garden you have there."

Rastus: "Yah suh, Pahson."

Parson: "You must thank the Almighty for it."

Rastus: "Pahson, did you ebbah see dis piece of ground when de Almighty had it all to Hisself?"

congenital defect. Either could be the cause e, for the history in a morphine addict is apt be inaccurate.

Another point I should like to make is the fact it while inoculation subcutanesusly or intrave- usly with Str. viridans is possible, it is not too ely. The organisms more apt to be so injected the Staphylococcus, Str. haemolyticus, or rtain molds. While the lack of emebolic phe- mna is somewhat against the diagnosis of bacute bacterial endocarditis, we must re- ember that these phenomena are accidents which ay or may not take place and that they are most always present when the disease runs a asonably lengthy course, rather than the rela- vely short one that we have in this instance.

DR. HAROLD J. LIVINGSTON: I saw this pa- ent shortly after admission and noted a dias- olic murmur at the apex. I thought the mur- ur to be of rheumatic origin with superimposed ubacute bacterial endocarditis.

DR. MAXWELL L. GELFAND: My impression as also that of an old rheumatic lesion with uperimposed subacute bacterial endocarditis.

Presentation of Pathology

DR. IRVING GRAEF: At autopsy, the skin and mucous membranes were free of petechiae. There was no external edema. The tips of the fingers were slightly enlarged, suggesting slight clubbing. The only significant visceral findings concerned the heart, spleen, and liver. The pericardial sac was obliterated by fine adhesions and a fibrinous exudate that could be readily detached. In some places, there were hemorrhagic extravasations in the epicardium, 2 to 3 mm. in diameter.

The heart was enlarged and weighed 700 Gm. with the aorta attached. The chambers were not disproportionately enlarged. Upon opening the right auricle, a firm vegetation, cylindrical in shape and measuring a centimeter in height and diameter, was found just above the auricular attachment of the septal leaflet of the tricuspid valve. It was dense, yellowish-red, and appeared to be covered with endothelium. The endocardium elsewhere in the right auricle and ventricle, as well as on the tricuspid and pulmonic leaflets, was not remarkable. The left auricle was free of thrombi, and the mitral valve and its leaflets were unchanged, except for a very fine row of glistening vegetations (less than 1 mm. in height and thickness) along the contact margin of the anterior leaflet of the valve. The leaflets were freely movable, otherwise thin and not fused at their commissural junctions. The chordae tendineae were thin, delicate, and discrete, and the papillary muscle not unduly hypertrophied or scarred.

The left ventricle was greatly dilated, and the wall measured 1.6 cm. in thickness near the base.

The aortic valve was remarkable. Only two cusps were discerned; one appeared to be of normal breadth and the other was twice as wide. Their commissural junctions were slightly fused and both leaflets were covered with partly friable, partly dense, reddish-brown vegetation, intimately attached to the underlying cusps. On section, the substance of the cusps could be discerned—fibrosed and partly calcified. The remains of a raphe were evident midway between the commissural attachments of the large cusp but its height could not be determined because of a large mycotic aneurysm which encroached upon it medially and posteriorly. This aneurysm extended through the inter-auricular septum and furnished the base for the polypoid vegetation above the tricuspid valve. Another mycotic aneurysm extended downward from the sinus of Valsalva into the myocardium of the interventricular septum and to the overlying epicardium. Where it involved the myocardium, it contained friable muscle and necrotic exudate. The coronary arteries were patent and not sclerotic. The myocardium on section was firm, beefy red, and exhibited no scarring.

The liver was enlarged, weighing 2,000 Gm. On section it presented a mottled appearance; some areas were lighter than others, and the lobular markings seemed prominent. The spleen was enlarged and weighed 450 Gm. It was firm, and on section it presented a reddish-pink tinge with prominent corpuscles. The red pulp was dense and not friable. No infarcts were seen.

Microscopic examination disclosed no rheumatic stigmata in sections of the left auricle, mitral cusps, and their attachments, interventricular septum or papillary muscles. There were no Aschoff bodies and no perivascular, endocardial, or intrafascicular scars. The section including the epicardium disclosed a diffuse inflammatory reaction, with a slight purulent and fibrinous exudate on the surface. Sections through the aortic leaflets disclosed a calcified fibrous core representing the remains of the cusps covered by compressed layers of fibrin, fragmented leukocytes including polynuclear and mononuclear cells. Bacterial colonies (gram-positive cocci) were profuse on the surface of the vegetation, and in some places in the deeper layers as well. There was little evidence of organization in the sample sections taken, but in places there was a considerable mononuclear cellular response near the vegetation.

Sections of the liver disclosed mild passive congestion with dilatation of the central veins and slight atrophy, together with fatty change of the adjacent liver cells. The portal areas

therapy, but on the morning of the twenty-second hospital day, the patient developed a sudden chill, with a temperature rise to 104.8 F., followed shortly by the development of auricular fibrillation with marked dyspnea, cyanosis, and a short episode of generalized rigidity followed by tremors and facial twitching. Respirations became increasingly rapid and shallow, and the patient died three hours later, twenty-four days after the onset of his illness.

Discussion

DR. MAX TRUBEK: The seeming abrupt onset and accelerated course of this patient's illness places it outside the category of sepsis lenta, in spite of the findings of Str. viridans on repeated blood cultures. Not all drug addicts who come with a febrile state have malaria. We have had at Bellevue several such cases with sepsis and endocarditis where the spiking temperature and splenomegaly at first suggested the more usual diagnosis of malaria. The latter was found among the heroin addicts who used the intravenous route and has been completely described by Dr. Milton Helpern. This patient had employed the subcutaneous route during the past eight months, which would be an unlikely cause for vegetative endocarditis. He may have reverted periodically to the intravenous injections. The distribution of the systolic murmur over the precordium suggests that the aortic cusps were involved. The state of the valve cusps at autopsy should give us a better clue as to the duration of the present illness and whether it was superimposed on an old inflammatory or congenital bicuspid valve. The patient complained of pain over his left chest, which apparently was not due to pneumonia. The aortic vegetations have a tendency to break through to the pericardium, but no mention was made of a pericardial rub. Pericarditis can cause pain over the precordium. Death was due seemingly to sepsis and to circulatory collapse. With the aortic site of the vegetation, we have the possibility of a coronary embolism hastening death. Although auricular fibrillation rarely precedes the occurrence of subacute bacterial endocarditis, it may occur as a late manifestation.

MAJOR LOUIS F. BISHOP, U.S.A.: In this case the differential diagnosis lies between subacute and acute bacterial endocarditis.

There was no evidence that this patient had an endocarditis for a long time. The spleen was not palpable; there was no anemia, and no embolic phenomena were noted. I believe we will find an acute vegetative endocarditis. Although it is unusual for Str. viridans to be the causative agent, I believe this is an acute endocarditis due to Str. viridans superimposed on an old rheumatic heart. In the Army, we find many apparen healthy young men with aortic diastolic mu murs who never have shown any symptoms cardiac damage and whose hearts are not l larged. It is possible that they may ha damaged valves, and such a valve would be likely seat for subsequent bacterial endocardit

DR. HARRY A. SOLOMON: This case is pr sented as acute bacterial endocarditis due Str. viridans. As in other types of acute ba terial endocarditis, the positive blood cultu gave the first indication of the diagnosis befo the characteristic features of the subacute typ such as embolic phenomena, had a chance develop.

There has been a tendency recently to con sider the Str. viridans as a nonpathogen secondary invader in subacute bacterial endo carditis, but even in these fulminating cases w have never been able to demonstrate a mixed in fection.

With the predominant involvement on the aortic valve and with symptoms indicating rapid development of heart failure and an overwhelming toxic state, one might be justified in suggesting the possibility that the vegetations had extended into the coronary vessels.

Necrosis of the cusps could account for the changing aortic murmur, and extensive myocardial infarction would account for the sudden heart failure and increased toxic state. These serious developments of the disease itself would probably have been attributed to the sulfonamides effect if the contemplated therapy had been carried out beforehand.

DR. TRUBEK: In a clinical case of bacterial endocarditis, the finding of Str. viridans in the blood culture cannot be regarded as a so-called secondary invader. Such a phenomenon might occur during other illnesses, such as typhoid fever, where the Str. non-haemolyticus may eventually invade the blood stream of the patient, who is debilitated by the primary major illness.

DR. ARNOLD KOFFLER: There are a few interesting features in this case that I should like to discuss. In the first place, I should like to point out the similarity in symptomatology between subacute bacterial endocarditis and pulmonary tuberculosis. The hacking cough, spiking temperature, weakness, and sweating may easily be mistaken for, or confused with, tuberculosis. The cough in the early case of endocarditis is difficult to explain, but it has been suggested that it may be due to enlargement of the tracheobronchial glands.

The pathology in this case points particularly to the aortic valve where the commonest causes of involvement are due to rheumatic infection

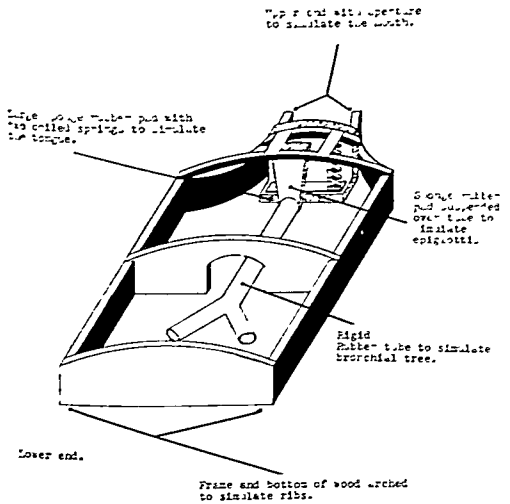
A BRONCHOSCOPIC MANIKIN

GERVAIS WARD MCAULIFFE, M.D., New York City

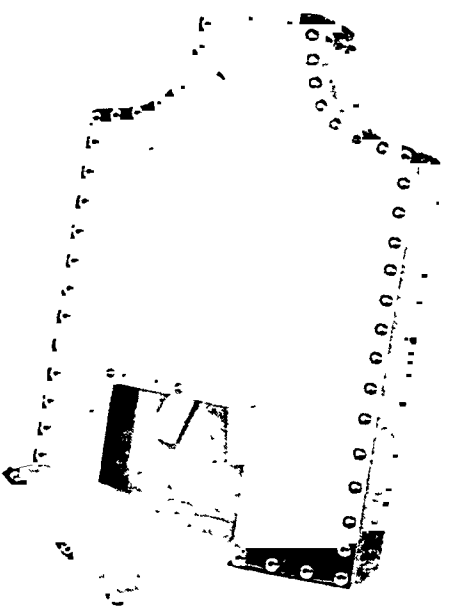
THE USE of a laryngoscope, bronchoscope, or an esophagoscope is a technical procedure which requires considerable skill. The comparative ease with which a larynx can be injured or an esophagus perforated by an untrained operator constitutes the major barrier to a more general use of this form of examination. Training in the use of these instruments should begin with a comprehensive review of the anatomy of the upper respiratory tract. Emphasis should be placed on the natural barriers or anatomic obstructions that make examination of the larynx, bronchi, or the esophagus difficult. The initial training should begin with a manikin, the student then advancing to work on a cadaver and a dog before attempting to work on the human being.

We devised the manikin here illustrated in order to place particular emphasis on the main anatomic obstructions which have to be overcome before a clear delineation of the larynx, bronchi, or esophagus can be obtained with a laryngoscope, bronchoscope, or an esophagoscope.

In actual use the manikin has proved helpful and it is inexpensive to assemble.



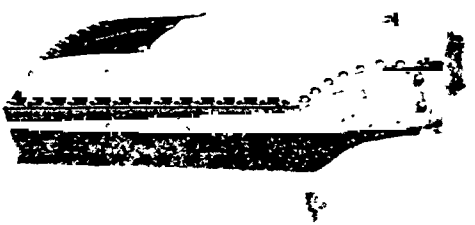
A bronchoscopic manikin



Front view

ANATOMIC OBSTRUCTIONS IN THE PRONE POSITION

Subject	Manikin
1. Tongue. Convex Pressure down	1 Large pad of lastex covering two large coiled springs Pressure down
2. Epiglottis: Elastic shelf Pressure down	2. Shelf of thick lastex anchored Pressure down
3. Glottic chink: Elastic bands Pressure lateral	3 Rubber tube constricted laterally
4. Bronchi. Semirigid tube Bend to right and left from midline	4. Carina simulated by sewing together 3 rubber tubes of same diameter



Side view

were prominent because of moderate deposits of fibrous tissue and aggregates of lymphocytes. None of these deposits communicated with each other. Sections of the spleen showed considerable hyperplasia of the red pulp, with increase in mononuclear and polynuclear cells. The Malpighian corpuscles were large but otherwise not remarkable.

Sections of the kidneys disclosed no unusual changes and no focal embolic lesions were encountered in the glomeruli.

Postmortem cultures of the vegetations on the aortic valve yielded a pure growth of Str. viridans.

Pathologic Diagnoses

Subacute bacterial endocarditis (Str. viridans) of the bicuspid aortic valve with extension via the root of the aorta to the right auricle and to the epicardium.
Mycotic aneurysms of the sinuses of Valsalva.
Polypoid vegetative endocarditis of the right auricle.
Hypertropy and dilatation of heart, chiefly of the left ventricle.
Acute fibrinopurulent pericarditis.
Pulp hyperplasia of spleen.
Mild chronic passive congestion of liver.
Mild portal cirrhosis of liver.

Comments

This case furnished a number of points for comment. The first is the nature of the underlying aortic lesion on which bacterial endocarditis was superimposed. It was demonstrated that the aortic cusps had fibrous and calcific centers beneath the vegetation, but the process was so advanced as to preclude a definite diagnosis of the antecedent status. The destruction of the raphe behind the large cusp limited the analysis in a similar way.

There are three general categories of bicuspid aortic valve which are generally recognized. The *congenital* does not seem to apply since the cusps were of unequal size. The *rheumatic* type in which two cusps become fused as a result of inflammation seems to be excluded because of the absence of rheumatic stigmata in other parts of the heart. The third category, commonly encountered in the form of *calcareous disease* of the aortic valve, is of doubtful etiology itself, with some authorities insisting that it represents the end stage of old endocarditis, whether rheumatic or of other cause. Others hold it to be an independent degenerative lesion of the aortic leaflets which may lead to the acquired bicuspid state by fusion of adjacent heavily involved cusps.

In the absence of rheumatic signs in other parts of the heart, one is tempted to place this case in the third category, but since rheumatic fever occasionally affects the aortic leaflets alone and only a few blocks were taken from other parts of the heart, we cannot be dogmatic about the classification of this heart.

The terminal disturbances in electrical conduction may be correlated with the strategic location of the mycotic aneurysm and its extension to the myocardium and into the auricle wall. This probably accounts for the prolonged auriculoventricular conduction and the sudden development of auricular fibrillation. I suspect that the sudden death accompanied by convulsive movements may be on the basis of complete heart block.

Finally, this case illustrates the difficulty of correlating acute symptoms in life with progressive morphologic changes that may be below the level of clinical detection. The short duration of the patient's symptoms are out of all proportion to the obviously advanced degenerative and inflammatory changes in the heart. While the course was relatively acute clinically, the morphologic changes reflect a much longer process.

SPECIAL SCHOOL TO STUDY ALCOHOLISM

The first formal school in the academic history of the United States to study the consequences of alcohol is being held in a six-week session of a School of Alcohol Studies at Yale University this summer.

Sponsored by the scientists of the Yale Laboratory of Applied Physiology, of which Professor Howard W. Haggard is director, it has enrolled about seventy-five educators, social workers, clergymen, and enforcement officers.

"The prevention of alcoholism and its ill effects is hampered by the lack of community leaders who have a broad scientific understanding of the problems of alcohol," the school prospectus said. "The aim of the school is to educate such leaders by giving them thorough grounding in scientific knowledge about these problems."

The School opened July 8, directed by Dr. E. M. Jellinek of the Yale Laboratory of Applied Psychology, and will continue through Aug. 18.

Groups cooperating are the National Education Association and the Federal Council of Churches of Christ in America. Each has agreed to assist in the selection of students for fellowship grants and to interpret the purposes of the school to the professional field in which it operates.

f Health, New York City: Agglutinates in O antigen of typhoid 1:20 dilution; negative for paratyphoid A and B; negative for Brucella; negative for typhus. A routine urine examination was negative. The blood count showed: hemoglobin, 76.6 per cent; red blood count, 3,930,000; white blood count, 11,600; polymorphonuclears, 86 per cent; and lymphocytes, 14 per cent.

On the twenty-second postoperative day, the patient developed a marked stomatitis. Smears for Vincent's organism were negative. Agglutination for typhus was also negative. Blood count: hemoglobin, 80 per cent; red blood count, 4,310,000; white blood count, 9,000; polymorphonuclears, 85 per cent; mononuclears, 1 per cent; lymphocytes, 13 per cent; and Türk cells, 1 per cent.

On the twenty-third postoperative day, the temperature reached 101 F. and was normal on the following day, remaining normal until the patient was discharged from the hospital, thirty-two days after the operation.

The chest cleared, and the stomatitis subsided. The spleen was at no time palpable. Urine culture from the Department of Health, New York City, was positive for Brucella. The only medication given was sulfadiazine.

Comment

The patient became infected by drinking goat's milk. His occupation as a mortician, in which he handled bodies, particularly Italian in nationality, must also be given thought. An individual who has been infected with the Brucella organism may apparently be in good health. The precipitation of the symptomatology of acute brucellosis is by a surgical procedure.

Conclusions

A case of chronic brucellosis has been presented. The final diagnosis of the disease rests with the isolation of the organism. The clinical picture of an acute type can be associated with a surgical procedure. Brucellosis must be thought of in postoperative continued pyrexia.

CONSTITUTIONAL INADEQUACY

"The main trouble with many of the patients that I see every day is that they are always weak and tired and full of pains and always getting sick in one way or another. Many have been operated on several times, but still they aren't well and they cannot get about and have fun as other people do.

"Again and again these patients go to some consultant or medical institution with the idea that this time they will get examined so thoroughly that the cause of all their troubles will be found and perhaps removed. Again and again they get overhauled, and each time the physician finds some little abnormality or physical peculiarity which he views with alarm and treats for a while.

"Commonest among the diagnoses made nowadays in the hope of explaining the sufferings of these people are colitis, spastic colon, ptosis, pelvic disease, adhesions, chronic appendicitis, glandular dysfunction, low blood pressure, mild Addison's disease, low blood calcium, brucellosis, and chronic nervous exhaustion. That in a given case the diagnoses made in the past were wrong and the local abnormalities found were not sufficient to explain the illness can be seen from one fact alone, and this is that the extensive treatments carried out and the operations performed in an effort to correct the supposed diseases did not put an end to the symptoms."

In the above paragraphs Alvarez admirably and succinctly sums up the problem of how best to deal with these people. Alvarez holds that it is incumbent upon the profession to recognize these individuals promptly, when they first begin to crack up, and that "when we do recognize the functional nature of the syndrome we must not rest satisfied with the diagnosis of chronic nervous exhaustion, as so many of us are now inclined to do, but must go on to apply a label—constitutional inadequacy—which will keep reminding us that we are dealing with an inborn and essentially ineradicable disease."

The Rochester clinician believes that "whatever the cause of this protean syndrome is, I am sure it is not to be found in any disease in any one organ, unless it is the brain. Actually, in most cases I feel sure the primary constitutional weakness is in the nervous system." And also that "the main defect in the inadequate person seems often to be a lack of that something in the brain that keeps most persons feeling well and unconcerned about health."

Alvarez believes that "constitutional inadequacy is inherited from forebears who suffered either from inadequacy, frailness of body, poor pituitary development, or some form of psychopathy." And we are also told that "treatment must consist mainly of keeping the patients from doing foolish things and wasting money. They must be taught, if possible, to acquiesce to the situation, to stop hunting for a complete cure, to hoard their energies, and to find a job that can be done without too much fatigue.

"In times of war every effort must be made to keep the constitutionally inadequate out of the Army.

"All they do is to break down morale and go on the pension roll."

Though his article is brief, the Rochester investigator has managed to cover a difficult subject well and in a convincing manner. Apparently the constitutionally inferior will be with us for a long time and every practitioner must strive to recognize them promptly and then endeavor to deal with them in the best possible manner. The recognition and proper evaluation of the functional disorders is especially deficient in students, interns, and very young doctors, though many older physicians fail all too often in this respect also. Handling these patients is apt to be difficult in the extreme and calls for much tact, sympathy, and understanding as well as diagnostic acumen and therapeutic proficiency.—*Editorial, J.M.A. State of Alabama*

Case Report

AN UNUSUAL CASE OF UNDULANT FEVER WITH POSTOPERATIVE PYREXIA

MILTON H. MORRIS, M.D., Far Rockaway, New York

Etiologic Review

With the recognition of undulant fever by Marston and the description of its causative agent by Bruce, the epidemiology of the disease has required considerable investigation and study.

Craig described the first case in the United States, and its endemic nature was recognized by Ferenbaugh, in Texas, who described an epidemic of 331 cases. This was followed by the designation of undulant fever as a reportable disease.

The occurrence of undulant fever among employees of packing houses has been described, but in a series of 270 cases only 4 could be traced to this source. Over 80 per cent of the cases are associated with the drinking of raw goat's milk. There have been cases described in which other domestic animals were the source of infection—namely, horses, mules, dogs, rabbits, and poultry. These animals are not, however, the reservoirs of infection and are not directly associated with its spread.

The ingestion of uncooked meat, such as liver and sausages, has been described as the cause of the disease. The spread by human carriers and by patients with chronic brucellosis, who are asymptomatic, is another way of propagating undulant fever, although to a small degree. It is recognized that 10 per cent of the cases do not have acute episodes but complain only of ill health, the cardinal symptoms of which are weakness and low-grade fever, and present no physical signs of the disease.

The occurrence of a water-borne epidemic among laboratory workers and the personnel, in which 80 cases occurred, was reported by Drs. A. W. Newwith, T. M. Koppa, and D. W. Gudakunst, from Michigan State College.*

The disease can also be contracted by handling discharges of the aborted fetus and its membranes.

Experimentally, the disease has been transmitted to the monkey by the bite of a mosquito. This, however, has not been demonstrated in man.

The most important animal in the spread of the disease in man is the goat, the primary host. It has been shown that man is more susceptible to the organism of the goat than he is to that of the cow or pig.

I present the following case of undulant fever, occurring in an individual who has never had the disease clinically, and who, following a surgical procedure, developed the clinical disease, acute brucellosis, with confirmatory laboratory findings.

Case Report

A 35-year-old white man, a mortician by occupation, entered St. Joseph's Hospital, Far Rockaway, New York, for an operation for inguinal hernia. The hernia was repaired in the usual surgical manner with no undue incidents during the operation. The pathologist's report of the hernial sac was that of fibrous and fatty tissue.

The patient's temperature was normal for seven days, but on the eighth day it rose to 104.6 F. The respirations were slightly increased, and the pulse rose to 100. The fever continued for seven days, the temperature fluctuating one or two degrees. On the fifteenth day postoperatively, the temperature reached normal and remained normal for three days. It then rose gradually to 104 F. and with fluctuations remained elevated for five days, dropped to normal, and remained so for the duration of the patient's stay in the hospital. He was discharged thirty-two days postoperatively.

Clinical Course.—The most important fact in the history is that, after questioning, the patient admitted drinking goat's milk about five years before, but at no time during this period was he sick or did he complain of ill health.

His physical examination was negative except for the presence of a right inguinal hernia. Urine was negative. A blood count was as follows: hemoglobin, 9.3 per cent; red blood count, 4,570,000; white blood count, 7,308; polymorphonuclears, 72 per cent; and lymphocytes, 28 per cent.

The patient was well until the eighth postoperative day. His temperature then reached 104.6 F., and he complained of a severe headache. Surgical consultation was negative. Physical examination was negative. The wound was dressed and cleaned, and there was a primary union. Ear, nose, and throat consultation was negative. Urine was negative. The diazo reaction was negative. The blood count: hemoglobin 86.5 per cent; red blood count, 4,470,000; white blood count, 5,900; polymorphonuclears, 82 per cent; lymphocytes, 17 per cent; and mononuclears, 1 per cent.

The blood Widal test was negative. Blood agglutination was negative for paratyphoid, A and B; stool culture was negative for typhoid, paratyphoid, and dysentery. Blood culture showed no growth in ninety-six hours. Urine culture showed: (1) pseudodiphtheria and (2) gram-negative small ovoid rods having the morphology and cultural characteristics of Br. melitensis. The report from the Department of Health was as follows: Brucella melitensis agglutinated in serum dilutions 1:80.

The temperature followed the course that has already been described. An x-ray on the seventeenth postoperative day revealed no pathology. On the twentieth postoperative day, the patient complained of severe pain in the right chest. Physical findings revealed some sonorous rales posteriorly above the fourth rib on the right side. Below this area, breath sounds were diminished. The x-ray report showed a marked thickening of the pleura and a trace of fluid in the costophrenic sulcus. A few mottled shadows were present in the mesial portion of the left lower lobe. The right dome of the diaphragm was obscured by pleuritis.

On the twenty-first postoperative day, the following report of blood was given by the Department

* Newwith, A. W., Koppa, T. M., and Gudakunst, D. W.; Am. J. Pub. Health, 29: 739–743 (July) 1939.

laborationists saved Paris, but who knows what will happen to Paris and all the other occupied places before the enemy leaves?

Restoration is the first work before anything else can be set up. Industry must be started, trade begun again, and transportation put in order. Employment must be found. We will have to do a large part of that unless we want to live in a world of corpses.

Then after that, what? After that, the beginning of cooperation. Cooperation will form itself by reason of necessity. The victorious nations will have to establish and maintain order in the world by reason of the conditions which will confront them. That cooperation will lead to something else. It will finally gather together the nucleus of a new order to maintain the peace which has been won.

And now I speak of what is very, very dominant and very important to you all and to all the people who want peace. I have read all the speeches; I have read Vice-President Wallace's speeches; I have read Mr. Willkie's speeches; I have examined the reports of groups which are studying the new world organization, and I do not find in them an examination of the cause for the failure of the League of Nations.

It would seem reasonable, would it not, that when we have had examples before us of efforts to maintain peace and to organize states in combination, that we should examine those organizations to find out why they fail, and then, having found out why they have failed, to see if we can apply a cure that will make them work?

They say—and I speak of the scoffers, and the timid, and the unbelievers, and the doubters—'How can it ever work? How can any world organization ever work in view of human frailties, of the competition and jealousies of nations, of the inimical force of politics, and of the ambitions of rulers and of politicians? How can it ever be made to work?"

If those who establish the postwar organization follow the old League lines, if they follow the old methods of attempted national cooperation, if they follow the plans that seem to be now in contemplation, they are bound to fail—and that in a very short time. The reason they are bound to fail is because of the very structure of such combinations of states or nations. Let us examine two examples.

We had in this country a United States of America before our own was organized. It was called "the Confederation." It was composed, as you know, of the Thirteen Colonies. They were combined in a League, in a United States, but they lasted only eight years. Why did they fail?

It was interesting to me, having worked on this problem on my own account, to find that I had support in very high quarters; and that support comes from Alexander Hamilton. Hamilton told the colonies why they failed, and what the cure was. It was not a people's league; it was a league of states. This is what Hamilton had to say on the subject: "The great and radical vice in the construction of the existing Confederation is the principle of legislation for states or governments in their corporate or collective capacity as contradistinguished from the individuals of which they consist." This was the defect, and in the Constitutional Convention they found the cure and formed a more perfect union.

If you smuggled something into the Port of New York under this new and better union that was formed, and should say to the customs officers, "I am a resident of the State of Massachusetts. I appeal to the State of Massachusetts," it would not do you any good. Why? Because the twenty powers given to the Central government of the United States are controls over individuals. You, as an individual, are brought up before the court, not as a member of a state. The government deals directly with you as an individual. When the constitution of the United States was established it did not say, "We, the thirteen colonies," or "We, the thirteen states," or "We, the thirteen nations." No, it proclaimed, "We, the People." We, the People, have organized this government to establish justice. And so it must be with any league of nations if it is to endure.

We are held together here by what I call an impersonal concept: our love of justice and our love of freedom, which thrills in every American heart. You have an impersonal concept in your Medical Society that binds you together in unity: your individual obligation to the whole, as individuals. If you are going to have peace in the world, you must have an organization or a government of peoples having in their hearts the concept, "We will no longer submit to being destroyed by war. We will set up a body of law which will say 'This thou shalt not do because it leads to war,'" and so we pass from the field of diplomacy into the sphere of law, and have a hope for life.

The League had its chance and what happened? The first opportunity was with Manchuria and Japan. Japan marched into that country without any just reason, yet the League did not even attempt to apply sanctions. Nations could not agree just as the colonies could not agree. They had been brought to disaster because each colony was first for itself and the devil take the hindmost.

Then came Italy and Abyssinia. Now the theory of the League was plain enough. These sanctions were: First, sever all diplomatic relations; second, sever all commercial relations; these would bring any country to its knees at once.

What happened? The traitor, Laval, went to Italy, and he came back with a formula, "easy sanctions gradually applied." That suited many interests in several countries, and they went on selling to Italy what she needed. Although we were not a member of the League, we could have done something, but we kept on selling them oil. The Italians went over to Africa, and they did not have a war; they just burned up the poor Abyssinians with their poison gas, and charred corpses were strewn over the desert, while the peoples of the world said, "The League has lost its authority! Are these traitors more important than this organization which we have set up to maintain peace in the world? Are these traitors going to abandon the effort until war is upon us again?" Well, the war is again upon us, and here we are in the midst of it.

It is said that if the United States had gone into the League this would not have happened. We could have taken part without being in it; and it did happen. Is our government so superior? Are our representatives so exalted in their ideas and their ethics? Are we so willing to make sacrifices for the common good and peace of the world?

It is said that if the League had had teeth it would have succeeded. Let me tell you what happened. The League would not even apply the commercial sanctions which were provided. Do you think they would have applied military sanctions, which is what "teeth" means? If they had been there, would they have gone to war with Italy when they would not stop trading with her? Certainly not. This claim that if they had had teeth in the League it

Annual Meeting

Medical Society of the State of New York

FOLLOWING the president's Address, which appeared in the June 1 issue of the JOURNAL, President Cottis introduced the guest speaker of the meeting.

Address

JUDGE WILLIAM H. WADHAMS

Mr. President, Ladies and Gentlemen: Doctors of Medicine are the fighters of death and the conservers of health. You look into the eyes of men and women throughout this state, and you learn their innermost thoughts, and you have glimpses into their souls. You know that these people are determined, first, to win the victory over the enemies we are now engaging, and then by some method to see to it that this fatal disease, this terrible calamity of war, which from time to time inflicts mankind, shall not continue in the world. You work to save lives, yet one bombardment of one city by four-ton blockbusters kills more people in an instant than you could save in a hundred years.

The tragedy is great. The remedy must be severe, and it must be applied. I was holding court in New York, when the messenger came in and said, "Armistice! Armistice! Armistice has been signed today." The court adjourned, and everyone rushed into the streets. The war was over, the killing was finished, our boys were coming home, peace reigned again in the world. We formed a procession. We marched up Broadway. The people all came out of their offices, and they fell into each other's arms. There was dancing and rejoicing, for the war to end wars had been won. It was going to be a new and a better world, and we were going to have peace on earth and good will among men.

Some of us had been working on a proposition as to how to bring that about. We had an organization called "The League to Enforce Peace." Ex-President Taft was its president and Lawrence Lowell, of Harvard, was the chairman of its executive committee. We formed a committee to organize a plan, and we drafted what we called a League of Nations. We went about talking about it. There was a pretty general approval, and we had a great dinner in Washington at which the heads of all the elements in the United States, the clergy, the leaders of industry and of labor, the doctors, the lawyers, the professions, and all classes and conditions of men were present. This program which we had prepared was presented to President Wilson, and he adopted it, and worked on it, and took it over to Paris with him. There had been some modifications in it; the teeth had been drawn. I had the privilege of being in the Clock Room at the Quay d'Orsay when he presented it to the Peace Conference in the form of the Covenant of the League of Nations. The delegates and the ambassadors could only take in one guest apiece, and I had the good fortune to be taken by our Ambassador as his secretary; so I clung to his coattails, and found myself sitting next to Orlando of Italy on the one hand and Jules Cambon of France on the other.

As President Wilson arose slowly and solemnly, he seemed to look into the future, offering peace to mankind through his League. There was a moment when it appeared that he was the savior of men, for all the peoples of the world were longing for peace. When he had finished reading, there were many speeches of approval. However, as he sat down, after reading the Covenant, Clemenceau, the lion of France, who had done such wonders in the World War but who had no peace vision for the future, turned around and looked at Cambon, who was sitting beside me, and winked. That wink told the whole story of the future of the League of Nations.

Having an office abroad, I had the opportunity to follow the League's course, and to see its failure and collapse. Let us hold an autopsy. What was the cause of the death of the League? An autopsy is only valuable for another patient, in case we find out how we can apply the reasons of death that we have discovered. The cause of the death of the League was that it was not a people's league; it was a government's league. It was a league of diplomacy. The Covenant was as good an instrument for the expression by a League of Nations of the common and unanimous will of the governments of its members as could well be drawn, yet it failed.

Before we go further and investigate what were the defects of its provisions and what may be a cure, I wish to warn you that the establishment of peace is not a thing that can be done overnight. First the victory must be won, and nothing must divert our attention from winning that victory, because until the aggressor has been vanquished there can be no peace. There can be no peace until we have utterly routed a people who have been educated to believe that hate is a virtue and that war is a normal condition. After the victory we will have to clear up the ruins—and such ruins as have never been contemplated. There are no kitchen utensils left for the women in their kitchens in France. The leather has been torn from the chairs, and the sofas, everything that is movable, everything that they can lay their hands on, the Germans have carted off to Germany, including my library; and the last I heard the Frigidaire had also gone after the library. Factories are gutted, the machinery is gone, and that which is there is being used to the utmost and will be worn out and valueless. The populations are being removed and scattered over the face of the globe. Children are being sent apart from their parents to unknown places, and their names changed. The mere work of trying to gather together the scattered remnants of what lives is in itself a tremendous task. Epidemics and starvation such as have never been known threaten the peoples of the world, starvation that looks for a crumb of bread. The Germans have not left these countries yet, and I tremble to think of what they will do before they leave them. Col-

Delivered at the 137th Annual Meeting of the Medical Society of the State of New York, Buffalo, May 4, 1943.

or, if sailing on the sea, in fear that the unseen submarine may destroy them. All the peoples long for freedom from fear, freedom from the fear of the monsters of the world, freedom from fear of the education of hate and war.

How are we going to stop this insane horror? By control of those who make the wars; by control of those who make the machinery of war. Everybody is agreed that we must stop this business of building these terrible instruments of destruction. But don't think we can stop it by acting through governments. History shows we cannot. But we can stop it by acting through law. Let me give you an example.

Supposing at some future time some future Mr. Goering started manufacturing arms and that it is against the law of nations for anyone to manufacture arms unless he has a licen e from the League created to see to it that the people shall have peace. Under the old league form, the Council of the League would pass a resolution, and through its diplomatic channels would address the government in which Mr. Goering lived. That Government would say, "Thank you very much! We will make an investigation." Perhaps weeks, or more likely, months later, would come a reply to the League, "We have investigated this matter very carefully, and we regret to say we find a grievous error has been committed. Mr. Goering is not manufacturing arms; he is manufacturing agricultural machinery."

What are we going to do about it? If we reject the reply of the government in which Mr. Goering lives, we are attacking his nation. We are promoting a crisis, which, if Mr. Goering persists, can only be overcome by force; and that means war.

What is the other alternative? The other alternative is to do what they did in the case of Italy: Swallow our pride, forget it, let Mr. Goering go on manufacturing arms and build up his war machinery, as well as other Mr. Goerings, until again the flame of war bursts upon the world; and so our league has also failed, whichever course it pursues.

Now supposing you had a real people's government, a League which pursuant to law had power to arrest individuals who violated its laws. The military police would swoop down in an airplane, arrest Mr. Goering, and take him to the nearest court, where he would be tried. It would be his offense, not the offense of the country in which he lives. Such a League deals directly with the individual, the individual who is stopped from doing the forbidden act. All acts of government, or of corporations, or of companies are performed by individuals. That is the way we stop crimes in the United States. As you know, there are only about twenty powers that by the Federal Constitution are given to the Federal Government, and they are all to prevent disobedience by individuals. To obtain freedom from fear we must stop armaments. We never will stop the production of armaments by nations through treaties, pacts, or agreements, or through any league based upon such foundations: but we can stop such production immediately, by League action against the individual.

That will give us freedom from fear. And now we come to freedom from want. I am reminded of something that concerned this City of Buffalo. At one time I was counsel for the New York Produce Exchange. We looked upon the Great Lakes, and found no boats were moving on them. The Great Lakes had dried up. And why? Because the railroads had made the freight rate from the foot of the Lakes, from Buffalo and Erie to Boston, New York, and Philadelphia so high that they had forced all freight to come all rail from the West, thereby depriving the shipper of cheap transportation on the Lakes. I went before the Interstate Commerce Commission and presented the case, and they changed the rate and made it a reasonable rate from the foot of the Great Lakes to the Atlantic Seaboard, and the boats began to move again on the Great Lakes. To do that, I did not bring in the State of Illinois, I did not bring in the State of New York, or the State of Ohio, or the State of Massachusetts. No, I brought in the railroads; the individuals had to obey the order of the court.

To ensure freedom from want, control transportation and trade so that the raw materials may go where they are absolutely needed, and so that there may not be great congestions of produce burned up in one spot while people are starving in other places; prevent the suffering and distress that cause new wars; bring the steamship companies into court. We will never obtain freedom from want by relying upon the voluntary actions of national governments.

Freedom of the press and the freedom of speech may be protected in the same way by requiring individual obedience to protecting laws. Any man who is oppressed ought to have a chance to be heard. At present there is no international court where he may apply for protection. There was no international bill of rights.

As nearly as we have come to it so far, the Four Freedoms and those expressed in the Atlantic Charter are a draft of the bill of rights. That is what the people are longing for because it contains in it the rights that man must have if he is to enjoy peace and freedom. Therefore, it is our obligation to see to it that this is a government of the peoples with responsibility of the people to obey. We made this government a government of laws, and not of men. That has been the trouble with France. France collapsed because it has been a government of men. They followed their leaders in the French Revolution. Then they followed the glory of Napoleon. Now some of them followed Vichy and its leaders. They were divided into factions, and they were working for one purpose—for themselves, not for France. They had no moral force to hold them together. The motto of the French Government, "Liberty, Equality and Fraternity," was mere words, a slogan. No, there was no unity in France; and if we are going to have peace in the world we have got to have unity in our people, a unity insisting that the people obtain a real organization of law to maintain peace.

Listen and watch. Listen to the speeches. Watch the proposals. See what speakers are talking about—whether they are talking about boundaries, or about big and little countries, or about forms of government, or about regional groupings. If you have a law of nations, it does not make any difference whether you live this side or the other side of a boundary; you are bound to obey the law. The boundary line is no obstacle to putting in such a plan. There is no objection to regional groupings, Pan-American Unions, the Danubian Union, or even a United States of Europe, providing all the citizens, the nations of such unions, are also bound to obey the Law of Nations to preserve peace. It does not make so much difference what the form of the government of each nation is, much as we would like to promote the democratic idea. Whether you are living under the Common Law of England in Massachusetts or under the Code Napoleon in Louisiana, it makes no difference; you are bound by that cen-

would have succeeded is sheer nonsense. There is something much more serious the matter with the League than that. It is the basic principle of such an organization that counts. There was a fundamental defect in the League's structure.

You can examine all the national and international combines, and you will find that if this defect is present, they, all of them, fail; and when it is not present, they succeed. That is why all the leagues that have been formed upon the personal obligation principle, dealing directly with the individual, have succeeded, and when they rely upon nation dealing with nation they do not succeed.

And why not? It is because of the virtue of nations. I repeat—the virtue of nations. A nation has been a very useful thing in the organization of mankind, but what is the duty of those in charge of a nation? To make the nation the most powerful, the richest, and the greatest country in the world. We hear a lot of that here. We enjoy waving the flag and letting the eagle scream. The duty of those in charge of a nation is to protect and promote the interests of its individuals. Very good! That is a very noble virtue, yet in the hands of foreign offices, state departments, and government agencies it immediately blocks any cooperation by a league because all the others are thinking the same thing. They are thus bound to come into conflict, and it is impossible for them in the nature of things to agree. History proves it. Legislation by a league is merely a proposal. It has to go back to the nations that form the league, and then in order to get it adopted you have to persuade them. You have to persuade them through diplomatic channels. The proposal is referred through its foreign office to a careful executive and to a jealous legislative body and to a debating committee, and in the meantime the aggression goes on, and the countries take sides, and the war proceeds. This is the inevitable result of the formation of a league along the old lines. It does not deal directly with the individual; it deals only with governments. Governments need take no affirmative act to defeat the league plan. All they have to do is to sit down and do nothing, or, as in the case of Italy, present an evasive plan.

When you consider what is at stake you will realize the importance of a proper foundation for any new order. How are they going about it now? Are they going along the old league lines that always fail? How are they thinking now? The old League had a general mandate to maintain peace based upon treaties between the nations.

The new league, whatever it is, will have definite and limited powers enforceable by law. What will those powers have to be? We have heard about the Four Freedoms. We know that the Four Freedoms are a glorious thing to have. Are you going to rely upon moral suasion to get them? If so, you will join the ranks of the wishful thinkers who are expecting by their wishfulness to obtain peace in the world. If you don't get them by moral suasion, are you going to get them by treaties, pacts, agreements among nations? The mere mention of the Kellogg Pacts raises hilarious and bitter laughter! War was banished by those pacts. Who forgot that? Are you going to rely upon balances of power? The trouble with power is that it does not remain balanced. The very conception of a balance of power is the antithesis of peace for the reason that by balancing power you are building up strength just as the German strength was built up to balance power in Europe, and when one of the parties obtains the upper hand, and the government is in the hands of ruthless, and determined, and ambitious leaders, your balance of power leads inevitably to war.

A league has to act through persuasion, and how are you going to do the persuading? A country's agents, of whatever party or whoever they are, who undertake to carry out a resolution of a league which is apparently a disadvantage—a temporary disadvantage—to their country, would have no chance of success. A jingo press would make it immediately perfectly clear to everyone that it would be an outrage for the nation to go forward along the lines of the league's resolution. It would be easy to create a national clamor, a national demand to break away from the league. That is what Lord Bryce pointed out. He said, "There are two kinds of leagues." One is "A league in which a number of political bodies, be they monarchies or republics, are bound together so as to constitute for certain purposes, and especially for the purpose of common defense, a single body. The members of such a composite body or League are not individual men but communities. It exists only as an aggregate of communities and will therefore vanish as soon as the communities which compose it separate themselves from one another. Moreover, it deals with and acts upon these communities only. With the individual it has nothing to do."

Such is the structure of leagues which, like the League of Nations, fail to maintain peace. As Lord Bryce says, they *vanish*. The second form of leagues, those which succeed, is a union of the people of nations which compose it. It does not deal through the government of those nations, but directly with their citizens, demanding individual obedience to its laws.

There is no use in blinding our eyes to the situation. It is not that I am condemning governments or their agents. They do the best they can even when they are in the hands of devious politicians and ambitious men. They do the best they can, and it is human nature that they should, because otherwise they would not remain in office; they cannot resist organized pressure and the people are unorganized. The people cannot express themselves sufficiently clearly, promptly, and energetically enough to prevent the acts which produce wars. We did not want this war. We did not cause it. We did not enter upon it because we were after anything in the world. We had to go into it to defend ourselves. We know that. But we are looking forward to other aggressors in the future who, like this arch fiend of hell, may put all the world into the devouring jaws of death. We have the power to prevent it, but only if you really want to prevent war. Are you really enthusiastic enough for freedom? We give our money, we give our sons, we give our people, we give everything for war; but what are we willing to give for peace? How much peace could we have bought with what we have expended? What years of millennium could have been purchased with this enormous waste of billions of dollars and millions of men?

Do we really want peace? Then organize for it. We, the people, we insist upon a government of law; we insist upon establishing a league that will assure us the Four Freedoms by giving it the necessary power over individual violations of its laws. I have not the time to discuss these laws with you. However, I will mention some examples. One of them concerns freedom from fear. We all live in fear. We don't know when a bomb is coming here. Those who live in the war-stricken areas are momentarily in fear of bombs that may be dropped from the skies,

Postgraduate Medical Education

Programs arranged by the Council Committee on Public Health and Education of the Medical Society of the State of New York are published in this section of the JOURNAL. *The members of the committee are Oliver W. H. Mitchell, M.D., Chairman (428 Greenwood Place, Syracuse); George Baehr, M.D.; and Charles D. Post, M.D.*

Revised Course Outline Book

THE Council Committee on Public Health and Education will soon have ready for distribution the revised *Course Outline Book* announcing the programs available for postgraduate medical education.

This instruction will be provided for county medical societies and hospital staffs.

Many new programs have been added and the already broad scope of subjects has been considerably increased. One interesting and timely addition is the "Teaching Day on Poliomyelitis." This presentation is divided into four parts:

1. Epidemiology of Poliomyelitis.—The scientific knowledge of this subject will be reviewed and brought up to date and special consideration will be given to more recently developed concepts, such as tonsillectomy and adenoidectomy as precipitating factors, and the role of sewage as a possible factor in transmission.
2. Clinical Features—Pathology, Diagnosis, and General Treatment.—All aspects of this subject will be reviewed. The newer work on the spread of the virus in the body and its possible clinical significance will be discussed. The question of the role of the respirator in therapy will be considered.
3. Physical Therapy in the Acute and Convalescent Stages.—Particular emphasis will be given to the Kenny Method. The significance of muscle spasm in the clinical picture of poliomyelitis will be discussed, the technic of detecting it will be described, and currently accepted recommendations regarding the extent and duration of the hot-pack treatment will be outlined. The accepted principles and technic of muscle re-education will be discussed.
4. Orthopaedic Measures.—The prevention of deformity by reduction of muscle spasm and by control of muscle imbalance will be considered. The current status of rehabilitative procedures (muscle re-education and other physical therapy) and of reconstructive and stabilizing surgery in the residual stage will be discussed.

Copies of the *Course Outline Book* will be sent to officers and committee chairmen of each county medical society. Also, copies may be obtained by others interested in postgraduate medical education by writing to:

O. W. H. MITCHELL, M.D., *Chairman*, Council Committee on Public Health and Education
428 Greenwood Place, Syracuse 10, New York

Malone Hospital Staff Hears Lecture on Rheumatic Disease

A SINGLE lecture, arranged for a staff meeting of the Alice Hyde Memorial Hospital in Malone, was held on July 20 at the Elk's Club in that city.

Dr. J. G. Fred Hiss, professor of clinical medicine at the University of Syracuse College of Medicine, spoke on "Rheumatic Fever—Rheumatic Heart Disease."

This instruction was presented as a cooperative endeavor between the Medical Society of the State of New York and the New York State Department of Health.

COLUMBIA GIVES COURSES IN THERAPY

Among the special courses being offered by Columbia University to prepare personnel for immediate and postwar rehabilitation are two professional programs—physical therapy and occupational therapy.

Technicians in both of these fields are in urgent demand in the Army and Navy as well as in the civilian field. Both of these specialized programs are designed to meet the requirements specified by the Council on Medical Education and Hospitals of the American Medical Association and are conducted within the University in close relationship with the College of Physicians and Surgeons, the Departments of Nursing Education, and Health and Physical Education of Teachers College. The required clinical practice will be given in the Columbia-Presbyterian Medical Center as well as in outstanding hospitals in the New York area.

Admission requirements for entrance into the nine-month course for physical therapy technicians include two years or sixty semester hours of college work (including courses in physics and biology) or graduation from an accredited school of nursing or an accredited school of physical education.

Admission into the occupational therapy course requires at least one year of college and preferably two. A science, sociology, and psychology are recommended prerequisites. The regular course has been accelerated to approximately two and a half years in length. Candidates already possessing a degree can register on advanced standing and complete the work in twenty-one months or less.

A certificate of proficiency is granted by the University following the satisfactory completion of either of these courses. A limited number of scholarships are available.

Bulletins and further information may be obtained from the Physical and Occupational Therapy Office, Room 312, School of Business, Columbia University.

tral law just the same, and the size of the state has nothing to do with it. If you are a citizen of Delaware or of Texas, you have the same obligation to obey the central law. The local law of the states and the size of states are no obstacles. Forms of government are no obstacle. If you are a subject of His Majesty the King Emperor, or if you are a citizen of the Soviet Union, or of the United States of America, you are equally bound as an individual to obey the Law of Nations. I believe the Russians would be for it; they want peace; after this war they want a law that will say a man cannot do this if it is going to interfere with the peace of the world. You can agree upon this fundamental: that every individual, no matter where he lives, has got to obey the Law of Nations and not do those things which make for war. So I draw to a conclusion and say, we, the people, shall insist upon a Law of Nations, which each one of us will uphold and will obey; otherwise I see the hordes of Genghis Khan sweeping the world, rushing from Asia over Europe; I see the thousands of horsemen of the Huns destroying civilization again; and I see the most terrible of all these calamities, the burying of all that is precious in dust and ashes.

Liberty-loving men, freedom-loving men, watch what is being done. If they are talking in the terms of sanctions by nations against nations, sanctions imposed to maintain world order in the future, if they are talking of pacts and treaties, they are talking in terms of failure. Such methods failed before and will fail again; so let us as the people insist not upon dreams but upon the will to live in peace established by law so that at last mankind may rise to its destiny.

COLD IS LATEST BOON TO MEDICINE

Anesthesia by refrigeration is making possible the development of a new shockless, drugless, almost bloodless surgery, Barclay Moon Newman, Lieutenant, USNR, says in *Hygeia, The Health Magazine.*

"Only a few years ago doctors would have agreed that death was sure to follow if the body temperature went down much below 95 degrees. Today this belief has been exploded," he explains. "More than that—man's ancient enemy, cold, is the chief tool in a number of interesting new technics. One of them is shockless, drugless, almost bloodless surgery. Another is a great boon to shipwrecked seaman. Yet another suggests that human biology can bid time stand still."

In several amputations in which it has been successfully employed as an anesthetic, Lieutenant Newman observes, "the basic reason for the effective help given by ice is very simple: Cold slows down all the processes of life. . . . .

"In any operation, the shock produced by the body's own poisons is one of the chief dangers. When a part of the body is thoroughly chilled, it produces fewer of the poisons that need to be thrown off. Not only are the nerves numbed—which happens when an anesthetic like ether is used—but all the flesh surrounding the nerves is numbed and inhibited as well. Ice surgery not only dulls the nerves that carry the bad news; by slowing down the chemical chain of events it prevents some of the bad news from occurring at all. And as bacteria also are living creatures, cold inhibits their growth and spread through an infected wound. . . .."

About one hundred and fifty years ago experiments were conducted with cold by Dr. James Currie, of Liverpool, England. One of Napoleon's surgeons during the retreat from Moscow noticed that intense cold made amputations almost painless. For the past hundred years or so not much was done in this line, the lieutenant observes, "until 1938, when Dr. Temple Fay and his associates at Temple University, Philadelphia, showed how much more cold the human body can stand than was thought possible. Dr. Fay felt that his attempts to slow the growth of cancer cells by localized icing were promising enough for an experiment in cooling down the whole body. . . . . As far as curing cancer is concerned, this semihibernation, or hypothermia, as physicians prefer to call it, has been a failure. But Dr. Fay took a bold step into the unknown and worked out a technic with which others may find the answer to many stubborn riddles.

'Meanwhile Dr. Frederick M. Allen, of New York, had been following another trail into the unknown. His experimental work had taught him the profound chemical why's and wherefore's of the rule pounded into every first-aider: loosen a tourniquet frequently. In hundreds of laboratory animals he had seen how the release of a tourniquet, if held tight too long, also releases poisons that produce shock and death. He had observed that the degree of shock could be controlled by changing the temperature of the bound limb. The lower the temperature, the lower burned the fires of life's chemistry. Therefore fewer waste products were piling up behind the dam of the tourniquet, demanding to be removed."

The boon of hypothermia to shipwrecked seamen involves its use in the treatment of what is known as "immersion foot," which results from the immersion of a foot in very cold water for long periods of time, as frequently occurs among sailors whose ships have been torpedoed. It has been found that the application of heat in cases of immersion foot results in inflammation, blisters, and intense stabbing pain, with gangrene, amputation, and death sometimes following. It now has been found that the use of cold in the treatment of immersion foot not only reduces or prevents pain but also keeps the danger of gangrene and other complications at a minimum.

Geneticists are intrigued by the possibilities opened up by the discovery that when human male sex cells or spermatozoa are plunged into liquid nitrogen at −319 F. below zero they freeze so quickly that their cell structure is not damaged and when warmed up again a good proportion of them are still alive. Investigators in this field report that the spermatozoa could be kept in this frozen state indefinitely and still remain alive.—*A.M.A. News*

Medical News

Amendments to Food Rationing Meet New Needs*

RECENT amendments to food rationing orders, involving osteopaths, condensed milk, fats, oils, and hospitals, are summarized in the *Journal of the American Medical Association* for July 17 as follows:

"The Office of Price Administration announced on July 2 that any medical practitioner authorized by the state in which he practices to prescribe all internal drugs is also authorized to certify that a person requires supplementary food rations for health reasons. Authority to make such certification was previously confined to doctors of medicine. OPA has now broadened the authority so that osteopaths in states which license osteopaths to prescribe all internal drugs may also prescribe supplementary food rations. Food rationing regulations provide that a person whose health requires more rationed food than his ration points permit him to buy may apply to his local board for necessary additional points. In some illnesses foods are prescribed in addition to drugs or medicines, or as a substitute for them. In some counties the work of ration boards in processing such applications has been much simplified through the voluntary help of the doctors themselves. By establishing panels to review all medical certifications and to advise the boards, responsibility for issuing extra rations for health reasons has been kept on a professional level.

"The Office of Price Administration under date of June 1 placed evaporated and condensed milk on the list of rationed products. These types of milk are added to the group of rationed foods containing meats and fats, for which red ration stamps are needed, without any increase in the total number of points allowed for this group. One point is required for one 14½ ounce can or for two 6 ounce cans or for two 8 ounce cans. This means that the child may use 7 of his 16 points per week for his milk requirements in terms of evaporated milk, which allows slightly less than the equivalent of a quart of whole milk per day, and have 9 points remaining for his meat and fat requirements. An invalid or any other person whose health requires that he have more canned milk than he can obtain with the stamps in his War Ration Book II may apply at his local War Price and Rationing Board for additional points. The consumer must submit a written statement of a licensed physician showing why he must have more canned milk, the amount needed during the succeeding two months and why unrationed foods cannot be used instead. A supplemental allotment to acquire canned evaporated and condensed milk needed by a hospital to meet the dietary needs of its patients may be obtained on application to its local War Price and Rationing Board. It is understood that, if the present method of rationing does not make evaporated milk available in all areas for infants and children, some more effective method will be worked out.

"The Office of Price Administration has issued an amendment to ration order number 16 (R.O. 16, amendment 25) which permits the use of rationed fats and oils for external therapeutic purposes. This includes the use of vegetable oils, such as cotton seed oil for bathing newborn infants, for external application in skin diseases, for urethral injection or lubrication of urethral instruments, and for x-ray visualization. Such use of rationed fats and oils is defined as "industrial consumption" and persons using these products for such purposes are classified as "industrial consumers." An industrial consumer engaged in the care and treatment of the sick and needing rationed fats and oils for this purpose may apply to his district Office of Price Administration for a certificate with which to acquire them. The procedure to be followed, briefly, is as follows:

The application should be made on form R-1605 to the district office.

If the applicant is a hospital, the district office will pass on the application by using the same method of computing allowances as the local boards use in computing allotments for industrial users; otherwise the application will be forwarded to the Washington office for action. If the applicant requires more than he would receive by the method of computation described, he should also submit form R-315 stating the reasons for such request. An "industrial consumer" to whom a certificate is issued for "industrial consumption" of rationed fats and oils may use it only to acquire the foods for which application was made and may use those foods only for the purpose for which the application was granted.

"For several months the Office of Price Administration and medical authorities have been studying the hospital problem with a view to developing a uniform procedure covering the granting of supplemental allotments for hospitals. Solution of the problem is believed near. In the meantime a provision in the regulations (section 11.6 of general ration order 5) should enable hospitals to obtain the necessary supplemental allotments so that patients need not suffer from dietary deficiency. This provision gives local boards authority to grant such allotments to meet the dietary requirements of patients living in and receiving care in hospitals whether or not such patients are on special diets. In determining the amount of the supplemental allotment of processed foods and the commodities covered by ration order 16, the local board will take into consideration the availability of fresh fruits and vegetables, unrationed substitutions such as poultry and fresh fish, and the physical facilities of hospitals to process and store such foods."

* This article is reprinted at the request of the A.M.A.

Polio Cases at Highest Since 1934

WHILE accurate predictions are impossible, there is an indication that 1943 may go down on the records as one of the major epidemic years for infantile paralysis. Analysis of the situation at the end of the first twenty-six weeks of the year shows the total number of cases to be higher than it has been for any of the past twelve years, except 1934. During the first six months, 1,084 cases were reported from forty-two states. (The six-month average for the past ten years is 841.)

The most severely affected states are California, Texas, and Oklahoma, with totals of 351, 230, and 33 cases, respectively. In the latter state, however, unofficial reports received since the compilation, for the period ending July 3, indicate that there has been a marked increase.

Medicine and the War

Medical Care for Civilian Defense Workers Injured in Performance of Their Duties

EDWARD M. BERNECKER, M.D.

Commissioner of Hospitals and Chief of the Emergency Medical Service of New York City

BY EXECUTIVE Order of the President of the United States, a plan is now in operation in New York City in cooperation with the United States Public Health Service, through which full compensation is made for medical services rendered by physicians and hospitals to members of the United States Citizens Defense Corps who are injured in the performance of their duties. This includes all members of the five protective services in New York City—namely, the Air Warden Service and the City Patrol Corps of the Police Department, Auxiliary Firemen of the Fire Department, emergency workers in the Department of Public Works and the Welfare Department, and the Emergency Medical Service of the Department of Hospitals. It is the intention of the Public Health Service that payments provided be adequate to furnish, without expense to the patient, his family, or friends, all the medical services and supplies reasonably necessary for proper treatment.

The processing of claims under the War Civilian Security Program by the Federal Security Agency of which the Public Health Service is a branch, requires a number of reports to be submitted on printed or mimeographed forms which are supplied to physicians and hospitals rendering service to civilian defense workers. It would only be confusing to list here the various forms that must be filled out before payment can be approved and authorized by the Chief of the Emergency Medical Service, in whom this responsibility is vested. Therefore, it is suggested that for detailed information regarding payment of claims, physicians and hospitals get in touch with MISS BEATRICE ZEITLIN, *Deputy Personnel Officer*, Emergency Medical Service, Department of Hospitals, 125 Worth Street, New York 13, New York (telephone WOrth 2-4440, Extension 413), immediately upon the application by any civilian defense worker for such treatment.

Scope of Civilian War Medical Care

The general scope and limitations of civilian war medical care are:

(*a*) Subject to the approval of the local Chief of the Emergency Medical Service, medical care may include the services of physicians, dentists, nurses, and attendants, in a hospital and at home; hospitalization at ward rates, nursing or convalescent home care; x-ray and laboratory services; drugs and medical supplies; certain prosthetic appliances; essential transportation; physical and occupational therapy and such other medical services and supplies as may be regarded as necessary by the attending physician.

(*b*) The Public Health Service will furnish only such medical care as may not be furnished under any other such plan (i.e., Federal, State, or local government medical plans, State Workmen's Compensation, Veterans' Administration, etc.).

(*c*) Medical care will not be furnished to any individual otherwise eligible if the Surgeon General determines that his condition resulted from his own willful misconduct.

(*d*) The Chief of the Emergency Medical Service, subject to the limitations set down in carrying out his responsibility, will take whatever steps he considers necessary to ascertain that the treatment instituted is adequate and will arrange for such consultations, special services, or changes in treatment as may, in his opinion, be necessary.

(*e*) Physicians, dentists, and hospitals which have been authorized to furnish services and supplies to the injured worker should submit their itemized bills, prepared in triplicate, made out to the Public Health Service, on the fourteenth day after instituting treatment and at monthly intervals thereafter. The Chief of the Emergency Medical Service will review the services and charges and forward the bills with his recommendations to the War Civilian Security Office in Baltimore, Maryland.

(*f*) Special drugs, prosthetic appliances or other supplies, nursing services, transportation, or hospital care at other than ward rates may be furnished only upon the written order of the attending physician certifying that such services, prosthetic appliances, or other supplies were medically necessary, and with the *written prior approval* of the Chief of the Emergency Medical Service.

(*g*) The determination of the Surgeon General will be final as to services and supplies reasonably necessary for proper treatment or burial, and as to the amounts to be paid in each case for medical care or burial.

(*h*) Payments for all services and supplies will be made at rates not exceeding the minimum prevailing rates in the community for the same services or supplies. Where applicable, rates in common use under workmen's compensation laws, under laws administered by the United States Employees' Compensation Commission and the Veterans' Administration will be used by the Public Health Service as guides in determining the amounts to be paid. Payments for burial will not exceed $100 in any case.

Persons now using their highest skills in war work should not apply for these positions. Appointments in Federal positions are made in accordance with War Manpower policies and employment stabilization plans. Before a definite offer of appointment is made, eligibles are cleared through the Procurement and Assignment Service for Physicians, Dentists, and Veterinarians, of the War Manpower Commission.

Persons rated eligible on the Medical Officer examination of 1941 need not file applications again unless they consider that they now possess qualifications for eligibility in a higher grade or different option.

Further information and application forms may be obtained at first- and second-class post offices, Civil Service Regional Offices, and the Commission in Washington, D.C.

Bacterial Warfare Impractical

IN AN editorial discussing a paper by Col. Leon A. Fox, of the U.S. Army Medical Corps, in which it is pointed out that there are practically insurmountable technical difficulties preventing the utilization of bacterial warfare, the *Journal of the American Medical Association* for July 17 says that "It is hoped that Colonel Fox's paper will be as widely quoted in the popular press as have been the numerous frightening hypotheses that it contradicts." The *Journal* editorial follows:

"The Geneva Disarmament Conference of 1932 considered bacterial warfare serious enough to prohibit its use. This action contributed to the popular fear of pathogenic [disease-causing] micro-organisms as effective military weapons. To allay this fear come two timely reprintings of the classic paper by Col. Leon A. Fox, of the U.S. Army Medical Corps, which summarize the current opinion of military experts.

"Threatened introduction of new weapons or methods of warfare has often had to overcome opposition based on ethical, religious, or humanitarian grounds. The early use of gun powder had to overcome opposition of this type. Military history, however, teaches that a weapon has never been abandoned for such reasons unless displaced by more effective weapons or until adequate countermeasures have been developed. Military history also reveals that epidemics were often the determining factor in past wars. In many campaigns contagious diseases caused such great loss of life and such large numbers of noneffectives on both sides as to lead to a stalemate. In other campaigns great differences in the degree to which the two opposing armies reacted to such epidemics occurred.

"The major military pests of the past have been the enteric [pertaining to the intestines] fevers, typhus, bubonic plague, and smallpox, with influenza, the pneumonias, malaria, measles, meningitis, and syphilis playing a minor role. Popularly, it is often assumed that these diseases would be particularly effective military weapons. However, fully virulent causative agents cannot be prepared in large quantities and cannot be introduced in adequate doses into the bodies of unprotected and nonimmunized enemy populations. The essential problem of bacterial warfare from an offensive point of view is therefore the problem of mass production of military pathogens and of devising safe and effective methods of inoculating the enemy. The whole group of enteric infections, for example, could probably never be successfully used as instruments of warfare. Real epidemics of these diseases are traceable only to infected drinking water. While contamination of reservoirs and municipal storage tanks is militarily feasible, such contamination would be largely ineffective because of routine filtration or chlorination methods. Modern sanitary methods, therefore, should be adequate countermeasures against this type of bacterial warfare.

"Among the respiratory infections, a number of maladies are serious enough to be effective if ways of using them can be devised. The two diseases of this group most frequently mentioned are influenza and meningitis. In neither disease could the infective agent be prepared in sufficient quantities, virulence, or stability for military use. The meningococcus, for example, is so delicate that it rapidly dies when exposed for even a few hours to temperature much below that of the human body. The only feasible methods of introducing meningitis into opposite forces would be by human carriers. This would be hardly worth while, since any military aggregation of great size already has so many meningitis carriers (anywhere from 2 to 30 per cent) that the introduction of a few more carriers would be of little moment.

"The use of insect-borne diseases has also been repeatedly mentioned in the press, bubonic plague being the most frightful example. Possibly airplanes flying low could drop recently infected rats on opponent terrains. Even this, however, would probably not start an epidemic. Plague has been more or less endemic as a rodent disease on our own Pacific Coast for over a generation, yet there have been no local human cases in this region sufficiently numerous to be designated as epidemic. Only 6 cases of plague developed in 1924 among European troops stationed in the Punjab, in spite of the fact that 500,000 cases developed in the indigenous population. Typhus also would be ineffective, since control of typhus is a question of louse control.

"Tetanus, gas gangrene, and anthrax have been suggested as particularly effective military pathogens, since they are caused by resistant, spore forming bacteria capable of prolonged periods of viability [ability to live after birth] without loss of virulence outside the animal body. These microorganisms, however, do not produce epidemics, even though they are of military interest as wound invaders. Effective methods of preventing and treating wound infections have been developed. Since wound invaders are omnipresent in nature, the indiscriminate distribution of a few additional wound invaders would not add appreciably to the present dangers of combat.

"One of the commonest scares concerns the dissemination of 'deadly bacterial toxins,' of which botulinus toxin seems to be the pseudoscientific favorite. True, 'an airplane can carry sufficient (botulinus) toxin to destroy an entire city,' provided a carefully measured lethal dose of this toxin is administered orally, subcutaneously [beneath the skin] or intrarectally [into the rectum] to each inhabitant of that city. The release of food materials, contaminated with tremendous amounts of this toxin might conceivably cause a wholesale local destruction of rodents and sparrows. At most the number of human casualties would be negligible. Bacterial toxins like bacteria are readily destroyed by heat and are therefore inactivated by cooking. They are wholly unsuited for use in shrapnel or other projectiles.

"Bacterial warfare is often extended in popular literature to include the use of boll weevils, corn borers, and other agricultural pests. Most of these

We know from records for the past twenty-five years that the peak of each year's outbreak, when figured for the country as a whole, is not reached until sometime between mid-August and mid-September. These records further reveal that the sharp increase in incidence occurs between July 1 and September 1, with a corresponding sharp decline during the ensuing two months.

Even if 1943 has only an average number of cases, there will be difficult problems for those areas that experience epidemics. With so many doctors, public health workers, nurses, and physical therapy technicians serving in the Armed Forces, most communities won't be as well prepared as in former years to cope with an outbreak. Many will find a real challenge in the problem of providing ordinary and adequate care for their population without the added burden of an epidemic of infantile paralysis.

One of the most difficult phases of providing care for patients in an infantile paralysis outbreak is that of supplying sufficient physical therapists trained in the Kenny method of treatment of this disease. There are less than 2,000 registered physical therapists in the United States. Only a small part of those remaining for civilian practice have had any training in this newer method of treatment of early cases of infantile paralysis. The shift in emphasis in treatment from one of rigid immobilization to one of early physical therapy has created a new demand for the services of physical therapy technicians. That demand cannot be met without careful planning and some sacrifice.

The National Foundation is doing all it can to supply these trained workers to epidemic areas. Technicians are being borrowed from nonepidemic areas and assigned to hospitals where the need is greatest. It must be realized that there are not enough trained technicians to go around if and when epidemics spread and increase beyond a certain point. A physical therapy technician can care for only a limited number of patients—certainly never more than 15 or 20 mild cases—and her full time may be taken up by as few as 6 cases with extensive involvement. Neither nurse nor physician can substitute for the physical therapy technician. To add further to the problem, it is only through special study that the technician can master the details of the early physical therapy of infantile paralysis.

The National Foundation, with the aid of its many chapters, is rendering real service. The need, in epidemic areas, not only for more skilled workers, but also for wool, respirators, and hospital equipment, has been met. Chapter funds have helped to meet the hospital and medical expenses of many patients who otherwise might have been unable to secure the proper care when it was most needed.

It is certain that there will be not only many more cases of infantile paralysis during this present year, but also many more areas with epidemic outbreaks. The difficulties and hardships brought about by these epidemics will be reduced to the very minimum where chapters work and plan with the local and state medical and health authorities.—*National Foundation News*

Examinations for Medical Guard-Attendants and Technical Assistants

THE Civil Service Commission has announced an examination to secure Medical Guard-Attendants and Medical Technical Assistants for the U.S. Public Health Service.

Applicants for *Medical Guard-Attendant* positions, which pay $1,970 (counting overtime compensation) a year, must be registered graduate nurses, or have had at least three years' service in the Medical Corps of the Army or Navy, or have had eighteen months' service as hospital attendant-guards in any one of the Department of Justice penal or correctional institutions; in the Medical Center for Federal Prisoners, Springfield, Missouri; or in the U.S. Public Health Service Hospital at Lexington, Kentucky, or at Fort Worth, Texas.

It is desirable that applicants should have had satisfactory experience as guards in penal or correctional institutions, as soldiers, sailors, or marines, or as hospital or asylum attendants.

Applicants for the *Technical Assistant* positions, which pay $2,433 a year (counting overtime compensation), must possess the qualifications for Medical Guard-Attendant and in addition must have had one year of training or experience in one of the following options: Clinical Laboratory Technic, Pharmacy, or X-ray Laboratory Technic.

Applicants must have reached their twenty-first birthday. There is no maximum age limit. No written test is required. Persons now using their highest skills in war work should not apply. Appointments in Federal positions are made in accordance with War Manpower Commission policies and employment stabilization plans.

Persons who received eligible ratings under the examination announced for these positions in July, 1941, need not apply again.

Further information and application forms may be obtained at first- or second-class post offices, Civil Service Regional Offices, and the Commission in Washington, D.C.

Medical Officers Needed for Federal Civilian War Service

THE critical shortage of physicians to engage in vital war work in the civilian branches of the government continues. The great need for these men resulted in the announcing of a liberalized civil-service examination for Medical Officers in 1941. The Civil Service Commission has just revised and reannounced this examination.

The twenty optional branches under which doctors may apply range from General Practice to Aviation Medicine. Those appointed will perform professional duties as doctors of medicine in active practice in hospitals, in dispensaries, in the field, or in rural areas; or in bureaus of the government, such as the Veterans Administration, Civil Aeronautics Administration, Public Health Service, and Food and Drug Administration. Doctors will also be used in industrial establishments under direction of the War Department.

Applicants for all grades must have received the degree of M.D. from an accredited medical school. Applicants for the Senior Medical Officer grade ($5,228 a year) must have had at least five years of appropriate medical experience; for the Medical Officer grade ($4,428 a year), three years of experience in addition to a required internship; and for the Associate Medical Officer grade ($3,828) one year of internship.

The salaries quoted above include overtime pay.

There are no written tests and no age limits.

veterans and classmates in medical school, more than half a century ago.

"Much as he has enjoyed his profession, Dr. Howland would choose dentistry if he had a chance to make a second start in life.

"'For a dentist's time is his own,' he said. 'Heisn't on call at any hour of day or night as a doctor is.'

"Dr. Howland's affiliations include the Erie County Medical Association, the American Medical Association, the Spanish-American War Veterans' Association, the American Legion, and the Veterans of Foreign Wars."*

Kings County

Contributions amounting to $32,375 have been subscribed toward the $40,000 annual development fund of the Long Island College of Medicine by business organizations, labor unions, doctors, alumni, and residents of Brooklyn, it was announced recently at the third report meeting of vice-chairman and workers held in the office of Dr. Frank L. Babbott, chairman of the college's board of trustees and former president of the college.

At the meeting Dr. Jean A. Curran, president of the school, explained the basis of the new military training program at the college. He said that under the program the government will confine financial aid to the expenses of the men assigned to the college for medical training.

No government funds, he pointed out, can be used to finance extension of the college's program such as the development program will provide.

He added that it is the obligation of the college to maintain the institution at maximum usefulness to the community and to expand its program of education, service, and research as medical development makes it necessary.*

Monroe County

The Nutritional Committee of the county society recently visited the Albion plants and laboratory of Snider Packing Division of General Foods Corporation.

The group, headed by Dr. G. Kirby Collier, included the following Monroe County doctors: Dr. C. B. F. Gibbs, Dr. C. W. Warren, Dr. R. L. Sommers, Dr. John Aikman, Dr. S. W. Clausen, Dr. N. G. Orchard, Dr. John Murlin, Dr. S. S. Bullen, Dr. B. J. Duffy, Dr. William A. Sawyer, Dr. Charles S. Lakeman, Dr. Estelle Hawley, Dr. L. C. Boynton, all of Rochester, and Dr. D. G. Cooper and Dr. Paul H. Mahany, of Albion.

The doctors were the guests of Snider's at a luncheon served at the Town Club.*

Nassau County

Dr. Arthur J. Harrington, of Hempstead, will resume his practice of medicine at his home address on September 1.

Dr. Harrington has been a patient at Mercy Hospital for the past several weeks and is reported as convalescing now.*

New York County

In order that an invasion of parasitic diseases from the tropics may be forestalled, training of medical and laboratory students in insect identification and other branches of parasite study has begun at Columbia University under the direction of Dr. H. Randolph Halsey, lecturer in zoology at the College of Pharmacy.

The establishment of these courses was based on the epidemic of parasite infections in certain sections of the world that lasted almost three years after the last war. Army and Navy officials have recognized the possibility of another insect plague by reason of "increased air travel, aerial combat over the tropics, and the presence of our troops in tropical areas."

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The Physicians' Home was presented with a check in the sum of $240.31 by Dr. J. Stanley Kenney, president of the Medical Society of the County of New York. This check represents the proceeds of a testimonial dinner tendered to Doctor Kenney on May 19, 1943.

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As part of the new teaching arrangements entered into between the New York Eye and Ear Infirmary and the College of Physicians and Surgeons of Columbia University, Dr. J. Morrisset Smith has been appointed to the School of Medicine faculty as professor of clinical otolaryngology and executive officer of the department of otolaryngology at the Infirmary. Dr. Conrad Berens is professor of clinical ophthalmology and executive officer of the department of ophthalmology. Instruction will continue to be given at the Infirmary, utilizing the clinics, operative surgery, and other hospital facilities.

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The American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, organized October 17, 1942, was incorporated on May 27, 1943, with the following objects:

1. To create a body of duly qualified physicians who are specialists in otorhinolaryngology and who have training and experience in plastic and reconstructive surgery.
2. To stimulate, to study and research, to investigate and advance in the field of plastic and reconstructive surgery, and to promote the interchange of ideas, of theory, and practice; and to maintain the highest ethical standard of practice.
3. To encourage and forward the investigation, study, and advancement, and to render every possible service to preventive medicine.
4. To encourage and forward the establishment of a school for the training of physicians in the field of plastic surgery.
5. To encourage and forward the establishment of institutes dedicated to the practice of the art of plastic and reconstructive surgery.

The officers elected for the year 1943–1944 are as follows: president, Dr. Romeo Luongo of Philadelphia; vice-president, Dr. Morris Bender; secretary, Dr. Jacob Daley; treasurer, Dr. Nathan Settel, all of New York City.

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Dr. Joseph Lo Presti, Assistant Surgeon, United States Public Health Service Reserve, has been assigned to the National Society for the Prevention of Blindness for work in the field of industrial eye hygiene.

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Ervin A. Tusak, M.D., has been promoted to clinical professor of ophthalmology at New York University College of Medicine for the academic year 1943–1944.

Oneida County

Dr. Thomas A. McGoldrick, of New York City, president of the Medical Society of the State of New York, was the guest speaker at the regular meeting

pests, however, take several years to propagate and invade a sufficient terrain to be effective economically. This would violate one of the fundamental laws of military science, since it might merely interfere with postwar economics, reducing the ability of a conquered nation to pay indemnities.

"Summarizing his argument, Colonel Fox concludes that there are 'practically insurmountable technical difficulties preventing the use of biological agents as effective weapons of warfare.' In this h confirms the previous opinion of numerous Germa bacteriologists, who, five years before the first worl war, were assigned the task of suggesting safe an effective weapons of bacterial warfare. Ehrlich, fo example, replied that 'nothing [he] could sugges would be of more than a nuisance value to the enemy and might even be a source of danger to our own troops.'"

County News

Albany County

At the meeting of the county society on June 23, the scientific address was "Chemical and Functional Testing as Aids in the Diagnosis of Some Important Clinical Entities." The speaker was Dr. Maurice Bruger, associate clinical professor of medicine at New York Post-Graduate Medical School, Columbia University, and chief of the Division of Pathological Chemistry, New York Post-Graduate Hospital.

Participating in the discussion which followed were Drs. James F. Rooney, Kenneth E. Crounse, Arthur W. Wright, and John J. Clemmer.

Bronx County

At the June meeting of the county society the following officers were elected: *president*—Frederick W. Williams, 1000 Grand Concourse, Bronx 56; *president-elect*—Moses H. Krakow; *vice-president*—Frank La Gattuta; *secretary*—Goodlatte B. Gilmore, 2940 Grand Concourse, Bronx 58; *treasurer*—Joseph A. Landy, 900 Grand Concourse, Bronx 56.

Cayuga County

Dr. M. LeRoy Seccomb, president of the Cayuga Health Association, has announced the appointment of a committee to represent the Association in cooperating with the Cayuga County Medical Society, the State and City Departments of Health, and employers in a chest x-ray program among industrial workers and migrants.

Dr. George C. Sincerbeaux, of Auburn, is chairman of the committee. Dr. John W. Copeland, chairman of the Public Health Committee of the Cayuga County Medical Society, is a member.

The program will enable employers to give their employees a chest x-ray at a very reasonable cost to the employers and without cost to the employees.

The information revealed by the x-ray will be confidential between the employee and his family physician or the plant physician.

Many plants in Auburn are planning to offer this service to their employees.*

Erie County

Dr. Lopo de Mello, director of the Syphilis Control Service of the Buffalo City Department of Health and Medical Consultant of the Division of Syphilis Control of the New York State Department of Health, has been commissioned in the United States Naval Reserve as a Lieutenant Commander. Dr. I. Jay Brightman is replacing Dr. de Mello in both positions.

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The Buffalo *Courier-Express* recently carried an interesting article about a Buffalo doctor, from which we quote:

"As contract surgeon of the 23d College Training Detachment of the U.S. Army, charged with the medical and surgical care of the 500 aviation students stationed at the University of Buffalo, 78-year-old John D. Howland, M D, is doing his full share toward the winning of the war This is the third war in which Dr. Howland has done his part During the Spanish-American War, he served as a major in Cuba, and in World War I, he was a lieutenant-colonel, commanding 3,600 men He and his regiment took part in the battles of Verdun and Metz.

" 'In both wars, I was a combatant,' Dr. Howland said I declined to serve in the Medical Corps, for, in those earlier years, I was eager for thrills and wanted to risk my life for my country. Today, I have to be satisfied to serve here at home; for, although exceptionally fit for a man of my age I'm not in condition for field service '

"At 78, Dr. Howland drives his car through all sorts of traffic, reads all but the finest print without glasses, hears perfectly, retains a good set of natural teeth, and possesses a head of hair many a man of 50 well may envy. Dr Howland requires only five hours' sleep in twenty-four hours A few weeks ago, he worked twenty-two hours without rest.

"Six years ago, at the age of 72, Dr. Howland retired, two years beyond the usual retirement age, from the post of physician to the Erie County Hospital, which he had filled for twenty-seven years. During the intervening years, he maintained a small private practice and cared for scores of Spanish-American War veterans of this vicinity. But that wasn't enough work to occupy a man of his vigor, ability, and intelligence. To the most casual acquaintance, it's obvious he's glad to be doing an important, time-consuming job again

" 'I look forward to many years of useful living,' Dr. Howland stated. 'My father attained the age of 86 years, and a couple of my aunts had more than 100 birthdays.'

"Born in New Bedford, Connecticut, June 12, 1865, Dr Howland comes of the oldest New England stock His first American ancestor, for whom he is named, was John Howland who came to these shores aboard the good ship Mayflower back in 1620, and was an officer of the guard of the Plymouth Colony.

"Before he was a year old, Dr. Howland came with his family to Buffalo, and has lived here for more than 77 years Before entering medical college, he worked in the transportation industry, having been identified with the Lackawanna New York Central, and Erie railroads and the Lackawanna steamship line. During college vacations, he used to serve as wheelsman on Great Lakes vessels.

"Shortly after his graduation from the University of Buffalo Medical School, in 1891, Dr. Howland visited friends in New York City, through whom he became well acquainted with the late Theodore Roosevelt.

'At the outbreak of the Spanish-American War, Dr Howland left a flourishing practice to serve his country. At the close of that war, he continued as an officer of the 65th regiment, and kept proficient in military matters. After World War I, he maintained his military connections until the retirement age of 64.

"For ten years, Dr. Howland was Erie County medical examiner. Subsequently, he became physician to the Erie County Hospital. When he joined its staff, the hospital's location was the present University of Buffalo campus. In 1926, he moved with the hospital to Millgrove

"Since his wife's death, his daughter, Mrs. Viola Christie, has shared his home They live at 141 Minnesota Avenue, Buffalo. Dr. Howland's son, Howard, is associated with the I. R C

"Dr Howland observes that because of the constant use of the automobile young men joining the armed forces today are less sturdy than his contemporaries of the Spanish-American War.

"Dr. Howland likes people, and gets a great kick out of keeping up his friendship with fellow Spanish-American War

* Asterisk indicates that item is from local newspaper.

Quality carries on



of the Oneida County Medical Society on July 13 in Marcy State Hospital in Marcy.*

• • •

The county society, at its first meeting since the death of Dr. Andrew Sloan, voted a resolution in memorium, as submitted by Dr. F. T. Owens.

The resolution follows:

"In the death of Dr. Andrew Sloan on April 21, 1943, this society lost one of its most devoted and loyal members.

"Practicing in this city for more than forty years, he was, to our knowledge, always a most active and conscientious physician.

"His attitude of constructive interest was recognized by his election and appointment to many important offices: president of our county society; first vice-president of the Medical Society of the State of New York; Oneida County delegate to the state society for many years; delegate to the American Medical Association; medical director of St. Luke's Hospital; one of the founders and, for ten years, president of the Utica Academy of Medicine; president of the Utica Medical Club; and a fellow of the American College of Physicians.

"His extensive practice made for him countless friends, to whom, as to us, his death brings a very personal loss.

"Therefore, Mr. President, we, the undersigned committee, move that this society adopt these resolutions offered in respect to the memory of Dr. Sloan and that a copy of these resolutions be entered upon the permanent records of the society of the County of Oneida and that they be published in the daily press and a copy sent to Mrs. Sloan as a respectful expression of our deepest sympathy."*

• • •

Dr. T. Wood Clarke, physician and historian, entertained Utica Rotarians at lunch recently with an account of relations between New England and New York State during the Revolution.*

• • •

Appointment of Dr. H. H. Shaw, Utica municipal health officer, as a member of the city's civilian protection staff, has been announced by City Engineer Joseph B. Shaw, director of civilian protection.*

Queens County

In order to further postgraduate educati tuberculosis, the Queensboro Tuberculosis Health Association is making available to Q physicians a limited number of scholarships f twenty-ninth session of the Trudeau School berculosis, Saranac Lake, New York, Dr R. Reuling, association president, has announc

The course, which begins September 13, four or six weeks of instruction. Two or four may be spent in the School at Saranac Lak nearby sanatoria. The student may elect to a the supplemental course for two weeks at Be Hospital, New York City.

The course will cover the whole field of pulm tuberculosis—symptomatology, pathology, di sis, x-ray, and treatment. There will be s lectures on silicosis and tuberculosis by well guest speakers. The course at Bellevue Ho will deal chiefly with pulmonary conditions than tuberculosis and with differential diagnos

• • •

A group of Queens physicians, acting throug B'nai B'rith Lodge of Kew Gardens-Forest Hi a ceremony at Borough Hall, Kew Gardens, pre over by the Commanding General of the Se Service Command, initiated the donation ambulance for the United States Army.

Richmond County

Dr. D. V. Catalano, of West Brighto now acting president of the county society succeeds the late Dr. H. Lynn Halbert, who the society's president.

St. Lawrence County

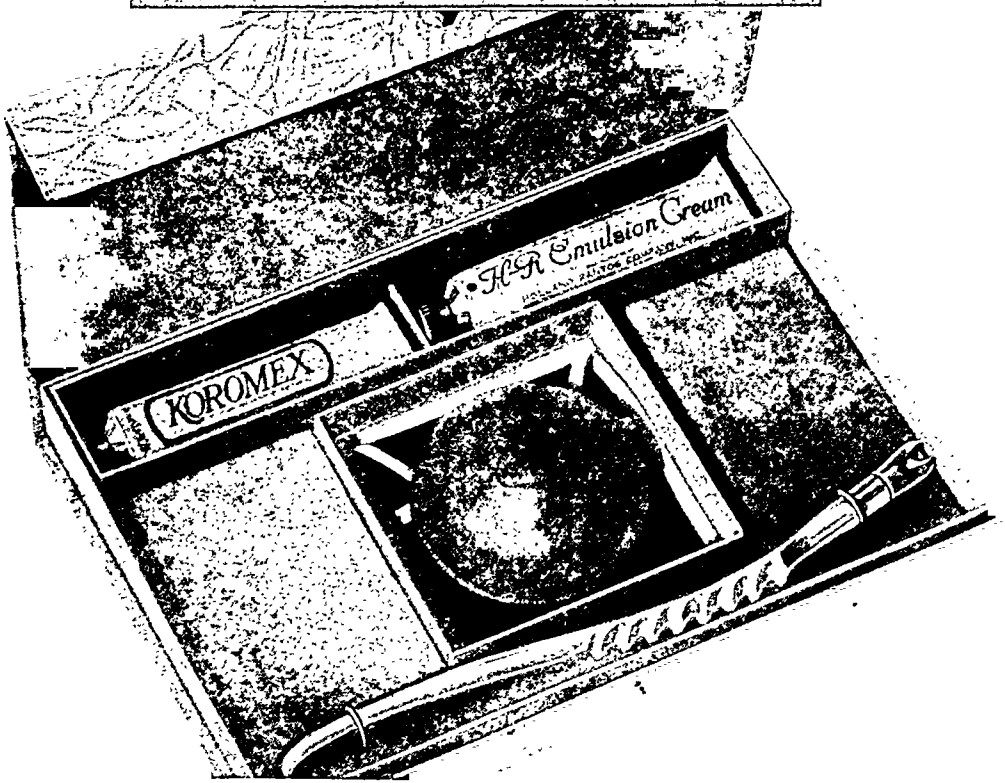
Local doctors are working out plans for m ter care of wives of sergeants, corporals, privates class, and privates in the Army and men of si grades in the Navy, Marine Corps, and C Guard, and for medical and nursing care for babies, Dr. F. E. Clark, city health officer of Ogd burg and president of the St. Lawrence Co Medical Society, has announced

Under a plan approved by the Children's Bu of the United States Department of Labor funds now be provided without cost to the family thro the New York State Department of Health allocation of funds for New York was effective 1.*

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
William H George	72	Albany	July 15	Albany
Charles J. Hart	43	Univ & Bell.	July 13	Manhattan
Emil F. Hartung	81	L.I.C. Hosp.	July 17	Kew Garden
Maria K. H. Humphrey	67	Michigan	July 18	East Roches
John Ketterle	70	Bellevue	July 9	St. Albans
Stanley M. King	52	Albany	July 27	Brooklyn
G. Massillon Lewis	88	N.Y. Univ.	May 8	Vernon
Florence W. McCarthy	69	Vermont	July 18	North Bang
Emil S. Tobie	78	Paris	July —	Buffalo
Leslie T Webster	48	Johns Hopkins	July 12	Manhattan
Justus G. Wright	65	L.I.C. Hosp.	July 26	Brooklyn

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** Price of Koromex Set Complete is only that of the Koromex Diaphragm and Koromex Trip Release Introducer*

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Hospital News

Parnall to Direct Investigation of Mental Hospitals

ARCHIE O. DAWSON, chairman of the special Moreland Act Commission appointed last May 26 by Governor Thomas E. Dewey to investigate New York State's mental institutions, announced on July 16 that Dr. Christopher Gregg Parnall, medical director of the Rochester General Hospital, Rochester, since 1924, has been named to direct the investigation.

Mr. Dawson said that the five-man commission selected Dr. Parnall from more than a dozen candidates and his name was sent to Governor Dewey for approval. The Governor, he said, prevailed upon the Rochester hospital to give its director a six-month leave for the survey. Mr. Dawson said the commission hoped to have a report ready for the Governor in time for the convening of the Legislature next January 1.

Mr. Dawson said Dr. Frederick C. MacCurdy, newly appointed State Commissioner of Mental Hygiene, has already made improvements in the department and has promised help in the study. Dr. MacCurdy replaced Dr. William J. Tiffany as commissoner when Dr. Tiffany retired during the original investigation of Creedmoor State Hospital in Queens Village. Dr. George W. Mills, superintendent at Creedmoor, also resigned and his place is temporarily filled by his assistant, Dr. Jesse L. Bennett.

Dr. Parnall, a former president of the American Hospital Association, went to Rochester General Hospital in 1924 after serving six years as professor of administrative medicine at the University of Michigan, where he received his medical degree in 1904. While there, he was director of the university hospital, including the State Psychopathic Hospital.

Dr. Parnall will have offices for himself and a staff on the ninth floor at 61 Broadway. Mr. Dawson said he did not expect any public hearings until fall.

With Mr. Dawson on the commission are Dr. Peter Irving, of New York City, secretary and general manager of the Medical Society of the State of New York; Dr. Fraser D. Mooney, of Kenmore; Charles Roswell, of Springfield, Queens; and Assemblyman Lee B. Mailler, of Cornwall. Its counsel is Alfred J. Bohlinger, of New York City.—*New York Herald Tribune, July 17*

Many Apply for Service in Hospital Units

ACCORDING to recent figures, more than 1,000 physicians and dentists have applied for association with the Affiliated Hospital Units for civilian defense, which were recently organized under the aegis of the Office of Civilian Defense and the U.S. Public Health Service.

Members of the staffs of affiliated units are commissioned in the inactive reserve of the U.S. Public Health Service, generally with ranks equivalent to those of captain, major, or lieutenant colonel in the Army. They remain on inactive status except when there is an emergency arising from an air raid or other grave wartime disaster. When called to active duty, they then receive the pay and allowances of officers of equivalent grade in the armed forces. They are expected to furnish service only in their own or neighboring states, and their obligation ceases at the termination of the present national emergency. The nature of the service is recognized by authorization to wear a lapel button which indicates that they have enlisted for emergency service. They do not wear a uniform until called to active duty and need not purchase one unless directed to do so when called to active duty.

The Board of Trustees of the American Medical Association and the Directing Board of the Procurement and Assignment Service have authorized essential physicians to accept positions with these affiliated units.

Some physicians have expressed the fear that acceptance of these commissions might involve them in a responsibility to the U.S. Public Health Service and might in some way encourage the acceptance by the profession of the proposed Wagner-Murray-Dingell bill. This is a misunderstanding. Those who become associated with affiliated units are under no obligation to serve in any other capacity, no matter what functions Congress may someday see fit to thrust on the U.S. Public Health Service. Duties of members of affiliated units are limited strictly to those which they have agreed to assume as a result of enemy action.

Improvements

A Sarlar suction and ether machine now being used at the Batavia Hospital is of the latest design and made of the best material. The hospital's old machine is being repaired and parts are being renewed so that it can serve as an auxiliary machine for bedside use.

The new machine is the gift of the Batavia Hospital Woman's Auxiliary.

The ether vaporizer part of the machine pumps ether vapor to the patient either in a mouth tip or a tracheal catheter, the amount of ether being controlled by the anesthesist as he judges the patient's needs to maintain the depth of anesthesia necessary while the surgeon does his work.

The big advantage of this is that the ether can be given continuously, even though the patient's mouth or face must be covered or worked upon. A unique feature of this machine is its portability, which makes it available for use in supplying air pressure when needed.*

* * *

The hospital for Joint Diseases in New York City has installed a new 200-K.V., 25-M.A. deep therapy machine. Deep therapy treatments, as well as superficial treatments, will now be given at the institution to Hospital patients.

* * *

[Continued on page 1556]

* Asterisk indicates that item is from local newspaper.

FIRST WOMAN ARMY SURGEON

In a July issue of the *New York Times Magazine*, Bessie Phillips brought into public light again the story of the Army's first woman doctor.

It is all the more interesting to New Yorkers because Dr. Mary Walker was a native of New York State, the daughter of a doctor in Oswego. Following the profession of her father, she graduated from the Syracuse Medical College at the age of 23 and began practice immediately in Columbus, Ohio. Six years later she returned to her home town.

Perhaps in those days, too, there was some opposition to accepting a woman doctor for military service, for Dr. Walker volunteered her service and entered the Union Army as a nurse, serving in that capacity for three years before she was commissioned a first lieutenant. Then as assistant surgeon, she held that rank until her retirement in June, 1865.

According to the records, Dr. Walker was as skilled as her male contemporaries in amputating legs and arms, suturing incisions and alleviating suffering. She dressed in the blue uniform like her brother officers, with a gold stripe running down the trouser legs, an officer's overcoat, and a black felt hat with gold cord, similar to the G.A.R. hat. Her jacket was cut like a blouse and fitted loosely at the neck.

Her adoption of male attire was a part of her general and lifelong struggle for women's rights and dress reform. After the war she continued to wear male attire—a frock coat, long trousers, a low beaver hat, and men's shoes. She also pioneered in the short hair-do for women, wearing her hair about as long as a man's when he is in need of a haircut.

Her proudest possession was a bronze medal, with an inscription on the reverse side reading, "Presented by the Congress of the United States to Mary E. Walker, A.A. Surgeon, U.S. Army." No record of the occasion of the conferring of this honor was made by the War Department and it was deleted from the list by the Board of Records in 1917. But shortly after the Civil War it was reported that Dr. Walker had been awarded the "Congressional Medal of Honor and Bravery" for services on the battlefield.

An army pension supplemented her income from private practice and lectures which she carried on almost to the end. She died at the age of 87 in 1919 at her home, Brinker Hill, near Oswego, as a result of a fall on the Capitol steps in Washington two years previously.

SUPERFICIAL

New York Journal-American, July 30, 1943—"Rather than comply with a Nazi order that they join the German chamber of physicians, 6,200 Dutch doctors have voluntarily renounced their profession."

* * *

New York Times, July 4, 1943—"Under the Nazi terrorism in Czechoslavokia, the Czechs, it is said, have not cracked. It is the terrorists who have the nervous breakdowns."

* * *

Daily News, July 29, 1943—"A letter to the editor of a Tulsa newspaper today invited Hitler, Tojo, 'and all the people of the world,' to hold a peace conference on 'my 20 acres of land.' "

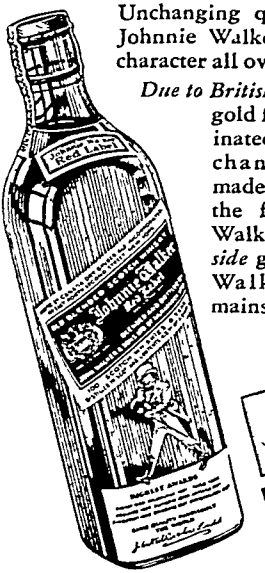
* * *

Saturday Evening Post, June 12, 1943—"Not many sounds in life, and I include all urban and rural sounds, exceed in interest a knock at the door."—Charles Lamb.

* * *

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[Continued from page 1554]

The maternity division recently completed and furnished in the new annex of Ilion Hospital is now open for inspection by the public, Miss Hazel Buckley, superintendent of the maternity division, has announced.

The nursery was the gift of Dr. B. J. Kelly, of Frankfort, and is regarded as the most completely equipped in the vicinity. It contains 16 cribs and a heated dressing table that insures an even warmth for babies, their bath, and clothing.

Adjoining the nursery is a kitchen for the preparation of formulas, with separate refrigerator. The new wing also contains a waiting room and a solarium.

The old maternity division is being converted for general hospital use and renovations are in progress to connect that section with the new hospital building.

The new annex, one of the most modern in this area, is not scheduled for official opening until fall, but the maternity division has been fully completed and may be inspected by anyone interested, Miss Buckley says.*

• • •

A new x-ray machine has just been put into operation at Potsdam Hospital. The new apparatus is complete with diagnostic equipment and many other attachments representing the latest developments in the field of x-ray.

The x-ray room has been enlarged and a new underground storeroom is now completed.

The Women's Hospital Guild is raising funds to purchase a cryptoscopic table with which portions of the old x-ray machine will be used. The table will have all x-ray attachments. It is hoped that the table will be installed by next September.*

• • •

On July 6 the Jefferson County board of supervisors set up a consolidated contagious hospital fund to meet salaries and wages of officers and employees of the Jefferson County Hospital for Contagious Diseases as of July 1.*

• • •

Faced, like hundreds of other hospitals, with the urgent necessity of housing new nurses and other personnel for whom room is not available in regular quarters, Methodist Hospital, of Dallas, Texas, found the answer in "Victory Housing." The completely prefabricated, portable, and demountable, small houses are cool in summer and readily kept warm in winter because of the air-space insulated and ventilated double roof.

As many as 10 to a freight car or 5 to a convoy truck, depending on the type, can be rushed to hospitals where housing is critical. Five hundred "Victory Homes" a day can be produced by the Dallas plants, which have made tens of thousands that are used by the armed forces. They are manufactured in multi-units or in single units.

• • •

An immediate campaign for a wartime "Victory Fund" of at least $75,000 for the Eastern Long Island Hospital at Greenport was undertaken by unanimous resolution of the Board of Directors at a special meeting.

The main purpose of the fund is to provide for construction of an additional building adjoining the new structure built in 1939. A secondary purpose is to meet the annual maintenance deficit which the hospital incurs in treating most of its patients at less than the cost of their care.

The new building is to be known as the "Victory Wing" of the hospital and will be dedicated to the memory of North Fork residents whose lives are lost in World War II.

Construction is to begin as soon as materials are available at advantageous prices and in a place where the work will help to stabilize employment.*

At the Helm

Leighton M. Arrowsmith, administrator for the last fourteen years of St. John's Hospital, Brooklyn, heads the new hospital unit of the institutional user branch, food rationing division of the OPA, it was announced by Archie Palmer, associate director of the food rationing division.

• • •

An All-American football end who forsook a promising career on the professional gridiron to study medicine has been placed in charge of the Urologic service at Rhoads General Hospital in Utica.

It was back in the 20's that George Tully, now Captain Tully, won gridiron prominence with the Dartmouth Indians, then coached by Jesse Hawley. In 1925, the year sportswriters were acclaiming Hawley's team as the mythical national champions, Tully was named All-American end on the Associated Press and United Press teams.

After his graduation from Dartmouth, Captain Tully played two seasons with the Philadelphia Yellowjackets, a professional gridiron team. He took up the study of medicine in the University of Vermont College of Medicine, receiving his M.D. degree in 1931.

He interned in Worcester, Massachusetts, his home city, then took a residency in urology at Morrisania City Hospital, New York City.

Upon completing his residency, Captain Tully opened an office for the practice of his specialty in Worcester in 1934. In 1938, he was appointed instructor in urology at the University of Vermont College of Medicine, a post which he retained until he was called into active service last November. Prior to his assignment to Rhoads in May, Captain Tully was stationed at Lovell General Hospital, Fort Devens, Massachusetts.*

• • •

Dr. Frank E. Hunter yesterday joined the staff of Homer Folks Hospital in Oneonta. He formerly was on the staff of Biggs Memorial State Tuberculosis Hospital, Ithaca.

• • •

Rounding out twenty-five years as pathologist at Vassar Brothers Hospital in Poughkeepsie, Dr. Alva L. Peckham will continue to serve as consultant with the arrival of Dr. J. Spottiswood Taylor, of Kingston, who recently was named to the post of

[Continued on page 1558]

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A VITAMIN CITY

City officials of Howey-in-the-Hills, Florida, are considering seriously changing the name of the place to "Vitamin City."

A scientific check of hundreds of Northerners, suffering from sinus troubles and common colds, who have spent short periods of time at this Floridian resort has revealed that such visitors have benefited considerably as a result of the visit. Credit is largely given to the consumption of large quantities of citrus fruit juices and inhaling the citrus fruit scented air, as well as to absorbing the Florida sunshine.

Howey-in-the-Hills, in addition to its natural scenic beauty, is noted as the location of the world's largest citrus fruit groves. It has long maintained a policy of giving visitors all the freshly-squeezed orange or grape fruit juices, made from tree-ripened fruit, that they can consume. The vitamin drinks are as free as water.

In their research, they claim to have also found that adolescents with acne have been relieved of this embarrasing condition through drinking ample daily quantities of freshly-squeezed grape fruit juice. In some instances the skin has cleared completely after a very short time; and in every case some improvement has been rapidly attained.

Howey-in-the-Hills is just 25 miles northwest of Orlando in the central part of Florida, and is located on Lake Harris, one of Florida's largest inland waters.

THE SHAPE OF TOMORROW

In *"The Spirit of Enterprise,"* recently published book by Edgar M. Queeny, some possiblities of the future suggest the limitless horizons of industry now that it has generally embraced science.

Mr. Queeny writes, "The day may come when workers will travel a hundred miles from country homes to offices and factories by helicopter bus.

"There will be prefabricated houses warmed by heat from tiny wires buried in the walls. Rooms will be air-conditioned for summer comfort, illuminated by cool, germicidal light, and equipped with built-in, low-temperature refrigeration. There will be new fruits and vegetables—larger, without seeds. Radios will be static-free and television in full color will be commonplace.

"Clothes will be made of extruded fabric and stockings will be molded and waterproof, stainproof, flameproof and as easily cleaned as a pair of rubber boots."

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[Continued from page 1556]

pathologist at the hospital. Dr. Peckham has been in ill health for some time.

In his long career at Vassar hospital, Dr. Peckham has been responsible for many changes in the laboratory. When he was appointed director of the laboratory in 1918 at the request of the late Guilford Dudley, then president of the board of trustees, there was only one laboratory assistant. Today the staff consists of 5 full-time technicians. He has also given a great deal of his time and valuable knowledge to the advancement of young scientific careers by allowing college and medical students to work in the laboratory.

A native of Schenectady, Dr. Peckham graduated from Union college in 1896 and received his medical degree from Hahnemann Medical college in Philadelphia.

Upon completion of his medical education Dr. Peckham went directly to Poughkeepsie and started practice, with offices in his home. When he became pathologist at Vassar Hospital, he gave up his private practice and devoted all of his time to the laboratory.

Dr. Peckham is director of the Dutchess County Health Association and has served as secretary of the association since its inauguration. He is also a director of Vassar Brothers Institute.

Dr. Taylor, who will begin his new duties at Vassar Hospital about September 1, is a native of Danbury, North Carolina.

He attended the University of North Carolina and was graduated from John Hopkins Medical School, where he also served his internship and acted as resident in pathology for three years.

In 1932 he became associate director of the Ayre Clinical Laboratory in Philadelphia and since May, 1934, he has been in charge of the Kingston City Laboratory.

Dr. Taylor is president of the New York State Association of Public Health Laboratories and president of the Ulster County Medical Society.

He is also a member of the Pathological Society of the State of New York; the Philadelphia Pathological society; and the Physiological Society of Philadelphia.

His wife, Dr. M. Elizabeth Moore, plans to continue her practice in Kingston for the duration of the war.*

• • •

Presbyterian Hospital, Babies Hospital, and the Neurological Institute of New York—units of the Columbia-Presbyterian Medical Center in New York City—have as their new president Charles P. Cooper, (former vice-president in charge of finance of the American Telephone and Telegraph Company), who was elected on July 12 at a meeting of the Board of Managers of the A. T. & T. Mr. Cooper succeeds the recently deceased Dean Sage, Sr., who for the past twenty-one years was president of the hospitals.

• • •

Dr. Louis Kleinfeld has been appointed director of the Department of Otolaryngology of the Bronx Hospital.

Newsy Notes

Beth David Hospital has announced that its Department of Tumor Research has had some highly gratifying results with treatment in cases of leukemia. The Department will accept a limited number of ambulatory or hospital cases for further study; no charge of any kind will be made in connection with this work. Referring physicians are instructed to communicate with either the Director of the Department or the Executive Director of the Hospital.

• • •

The government has renewed its appeal for women to enter nurses' training to meet military and civilian requirements estimated at 349,000 by July 1, 1944.

The Office of War Information has warned that "unless drastic steps are taken" the 1944 goal will fall 100,000 short. Present estimated requirements call for 66,000 nurses in the armed forces and 293,000 in civilian life.

Already 33,000 nurses have been recruited in the Army and Navy, the OWI said. The military branches are seeking 2,500 nurses a month.*

• • •

At its meeting on July 13, the board of A. Barton Hepburn Hospital in Ogdensburg passed resolutions in tribute to the late Dr. Grant C. Madill.*

• • •

Work in occupational therapy at Kings County Hospital was highly praised in an article by Ruth G. Davis published in the Brooklyn *Eagle* of July 18. We quote:

"Trained therapists and trained volunteers are a crying need today, for there are not enough to meet the demands of the Army nor the civilian hospitals. Brooklyn can boast of only one occupational therapy department in a general hospital, the one in Kings County Hospital. What a fine example of occupational therapy it is!

"Occupational therapy, often referred to as a 'work cure,' is remedial treatment in the form of supervised activity for persons injured in body or mind by accident or disease. There are four such occupational therapy shops at Kings County, under the direction of Miss Anna M. McNulty. Occupational therapy is a development of the 'keep them busy' idea to therapeutic treatment and is now given under directions from physicians and surgeons.

"In 1918 Kings County developed a new department to create diversion for the chronic patients of the Home for the Aged and Infirm. A small portable building heated by a coal stove was the headquarters, and only men were permitted to work. Miss McNulty directed the work, which at the time consisted of the making of brooms, brushes, window shades, etc. Miss McNulty, who recently has observed her twenty-fifth anniversary at Kings County Hospital, now has a staff consisting of 5 trained occupational therapists—Miss Dorothy Sniffen, Miss Florence Stattel, Miss Helen Peck, Miss Louise Craven, and Miss Orvilla Yost. These young women are kept busy in the four O.T. shops at

[Continued on page 1560]

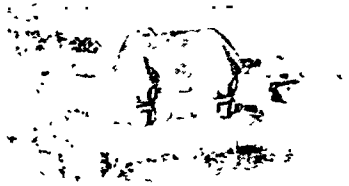
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ELECTRONIC "EYE" MEASURES SUNFALL

Sensitive new electronic "eyes" to see and record invisible ultraviolet rays in sunshine will soon begin their first daily measurements of "sunfall" in the United States to study its effect on the wartime health of the nation.

The new sun-measuring instruments eventually will operate in twenty of the world's first solar observation posts to be set up for a nation-wide ultraviolet study by the United States Weather Bureau. Located in Weather Bureau stations, the observation posts will be scattered over a 1,000-mile stretch of land running from Texas northward through the Mississippi Valley to the colder regions of the Middle West.

The first sun metering will get under way soon in New York City and in Boston and Cambridge, Massachusetts, to record the amount of ultraviolet which penetrates through the haze of big metropolitan centers. These figures may eventually make it possible to forecast for several days in advance the intensity of sunfall over a city, Weather Bureau officials believe—*Med. Times*

WEEK A YEAR PER EMPLOYEE LOST

Illness accounted for the loss of five and one-half days of working time per year per employee in a typical cross section of American industry studied by experts of the Industrial Hygiene Foundation, collaborating with the U.S. Public Health Service.

These studies, which concerned illness not due to industrial accidents, were announced through the annual report of the Mellon Institute of Industrial Research.

When only absences of eight days or longer due to illness were considered for the 1941 period in 14 companies the annual per employee loss was two and one-half days. Eight per cent of the men and 10.5 per cent of the women employed suffered these illnesses. When absences of one day or longer were considered, estimates showed that 50 per cent of the men and 82 per cent of the women took time off because of illness.

In one company the sickness absenteeism loss amounted to $180 per employee annually when reduced efficiency before and after illness was estimated and included.—*Science News Letter*



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[Continued from page 1558]

Kings County, which comprise the inpatient shop, where those able to walk or be wheeled can get their exercise; the wards, where movable apparatus is brought to the patient's bed; the outpatient shop where a released patient may return to continue treatment; and a diversion shop for orthopaedic conditions. There was at one time an occupational therapist for the neurological department, but for lack of help it has been temporarily closed.

"The rugs woven by the patients, the coat hangers, magazine racks, and other objects made by the patients are sold by the department to maintain their shops, as they receive no financial help aside from the original equipment and the payment of salaries by the city. All the crates for lemons, oranges, and other supplies discarded by the hospital dietary department are utilized by the staff.

"During the development of this beneficent treatment over the past twenty-five years, the Brooklyn committee of the New York City Visiting Committee has given occupational therapy its support and encouragement through its hospital occupational committee."*

* * *

Lt.-Comdr. Mildred A. McAfee recently inspected the newly-built barracks for the Waves who are stationed at the National Naval Medical Center in Bethesda, Maryland.

Now there are 200 officers and enlisted women scattered throughout the four commands at the center—hospital, research, dental, and medical. The jobs they do are varied and important.

Lieutenant (j.g.) Mildred Mitchell, a psychologist, with degrees from Rockford University, Radcliffe College, and Yale University, is with the neuropsychiatric service at the hospital. In all of the Navy there are only thirty psychologists doing hospital work. The twenty-nine others are men.

Ensign Sonya Lemish, of Rome, New York, a pretty girl with red-gold hair, a graduate of Smith College, was with the Rockefeller Institute for Medical Research before she joined the Navy. At Bethesda she is working on secret experiments with blood plasma.

Because research chemists cannot be made in a day, all of the girls in this department had experience before they joined. Pharmacist's Mate Second Class Minnie Davis had been for five years a laboratory technician with the Tulane Medical School and the Jackson, Mississippi, Public Health Department before she joined the Navy.

Waves are assigned to the hospital corps at their own request, provided they have had some training for this work or show an aptitude for it. Those without technical training start out as corpsmen and are taught all types of hospital work. When on ward duty they learn how to keep charts, administer medicines, make beds, serve food, take care of equipment, and generally help nurses, doctors, and patients. They are also assigned to laboratories, clinics, and offices, where they learn to keep records, operate x-ray machines, take blood tests, etc.

Some of these "hospital apprentices," as they are called, continue with this work. Others who have had some previous experience, or have specialized during their corpsman study, become pharmacists' mates, such as dental assistants or technicians in the medical laboratory. Lieutenant (j.g.) Margaret May Diehm, head of the laboratory and the senior officer at Bethesda, explained that the girls in her department are rotated from job to job so that they can broaden their knowledge while doing the actual daily work that must be done. This "learn while you work" method is in use throughout the hospital.

Before the Waves arrived, there was no occupational therapy department at Bethesda. It was started when Ensign Jane Cassidy, a graduate of Mills College and the Philadelphia School of Occupational Therapy, was sent there. Working closely with her is Ensign Barbara Stephens, a graduate physiotherapist, who studied in London and had been working, before she joined the Waves, with the Rhode Island Infantile Paralysis Foundation—*New York Herald Tribune*



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"SPARE THE DOCTOR" DRIVE OPENED

"First Aid to Doctors" is the theme of a recent publicity campaign among the residents of Monmouth County, New Jersey, and sponsored by the Red Bank and Long Branch Leagues of Women Voters.

Using newspaper articles and four-minute speakers, the leagues hope to acquaint the residents with their own serious shortage of physicians and show them how they can do their part.

Before the war, Monmouth County had 159 doctors in active practice. Now, for one reason or another, there are only 98. Although the government Public Health Service considers that one doctor for every 1,500 persons is the minimum for safety, this county has only one doctor for every 2,000 persons.

To spare the doctor, the leagues suggest that the patient "see him at his office as soon as you feel under the weather; don't wait until you are seriously ill. Don't ask for sympathy calls or for extra attention. Be cheerful and patient while you wait for him."

"Study and practice the rules of good nutrition," the leagues urge. "Get plenty of rest and fresh air. Take the Red Cross course in home nursing . . . . and the Red Cross course in first aid; proper attention to small injuries may prevent serious results. Do not ask for a private-duty nurse unless your doctor urges it."

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Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N.Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

RECEIVED

Urology in General Practice. By Nelse F. Ockerblad, M.D., and Hjalmar E. Carlson, M.D. Octavo of 383 pages, illustrated. Chicago, Year Book Publishers, Inc., 1943. Cloth, $4.00.

A Manual of Cardiology. By Thomas J. Dry. Duodecimo of 310 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Cloth, $3.00.

A Manual of Clinical Therapeutics: A Guide for Students and Practitioners. By Windsor C. Cutting, M.D. Duodecimo of 609 pages. Philadelphia, W. B. Saunders Co., 1943. Cloth, $4.00.

Nutrition and Diet in Health and Disease. By James S. McLester, M.D. Fourth edition, thoroughly revised. Octavo of 849 pages. Philadelphia, W. B. Saunders Co., 1943. Cloth, $8.00.

The Physiological Basis of Medical Practice. By Charles Herbert Best, M.D., and Norman Burke Taylor, M.D. Third edition. Octavo of 1942 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $10.

Skin Grafting of Burns. By James Barrett Brown, M.D., and Frank McDowell, M.D. Octavo of 204 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $5.00.

Lymph Node Metastases: Incidence and Surgical Treatment in Neoplastic Disease. By Grantley Walder Taylor, M.D., and Ira Theodore Nathanson, M.D. Octavo of 498 pages, illustrated. New York, Oxford University Press, 1942. Cloth, $8.00.

The Sexual Glands of the Male. By Oswald Swinney Lowsley, M.D., and collaborators. [Reprinted from Oxford Loose-Leaf Urology.] Octavo of 619 pages, illustrated. New York, Oxford University Press, 1942. Cloth, $10.

The Medical Clinics of North America. Vol. 27, No. 3, May, 1943. Octavo, illustrated. Philadelphia, W. B. Saunders Co., 1943. Published bimonthly (six numbers a year). Cloth, $16 net; paper, $12 net.

Atlas of Obstetric Technic. By Paul Titus, M.D. Octavo of 180 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Cloth, $7.00.

Principles and Techniques of Nursing Procedures. By Sister Mary Agnita Claire Day, R.N. Octavo of 574 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Cloth, $3.50.

Injuries of the Skull, Brain and Spinal Cord. Edited by Samuel Brock, M.D. Second edition. Octavo of 616 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $7.00.

Allergy, Anaphylaxis and Immunotherapy: Basic Principles and Practice. By Bret Ratner, M.D. Octavo of 834 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $8.50.

Whooping Cough. By Joseph H. Lapin, M.D. Octavo of 238 pages, illustrated. Springfield, Ill., Charles C Thomas, 1943. Cloth, $4.50.

Diagnosis of Uterine Cancer by the Vaginal Smear. By George N. Papanicolaou, M.D., and Herbert F. Traut, M.D. Quarto of 46 pages, illustrated by color plates. New York, Commonwealth Fund, 1943. Cloth, $5.00.

REVIEWED

Diseases of the Breast. By Charles F. Geschickter, M.D. Octavo of 829 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $10.

This is an encyclopedic treatise on diseases of the breast, both benign and malignant, with 593 illustrations. While there is a full description of classification and pathology of all types of tumors, the reader may be prompted to turn to the 300 pages devoted to malignant diseases and their treatment. There is an agreement with the conclusions of Adair that radical mastectomy is the treatment preferred, with preoperative radiation only in those cases in which there is a question of operability and postoperative radiation when it is found that the disease is not well within the limits of dissection. The final chapter is on the experimental production of benign and malignant tumors. Dr. Geschickter has produced an important contribution to the study of breast diseases, whether or not one agrees with his classifications or is willing to follow his dictum in treatment.

JOSEPH RAPHAEL

Aftereffects of Brain Injuries in War: Their Evaluation and Treatment. By Kurt Goldstein, M.D. Octavo of 244 pages. New York, Grune & Stratton, 1942. Cloth, $4.00.

The author of this book has had a rich experience in brain injuries that occurred in German soldiers during the first World War. He had the opportunity of following many of these patients for approximately ten years after the war. The result of such an experience is now available in book form.

There is a chapter devoted to symptomatology, another one to neurologic symptoms, and one to mental symptoms. Other chapters are devoted to the origin of symptoms and the psychologic laboratory examinations in which many tests are described in detail. The treatment is described in a chapter devoted to physical and neurologic therapy and in a separate chapter on social adjustment.

The book is a valuable contribution to the management of brain injuries and is a very opportune one in view of the large number of cases that are inevitable in the present war. It is highly recommended to all who are interested in the subject.

IRVING J. SANDS

The International Medical Annual: A Year Book of Treatment and Practitioner's Index. Editors: H. Letheby Tidy, M.D., and A. Rendle Short, M.D. Sixtieth year, 1942. Octavo of 396 pages, illustrated. Baltimore, Williams & Wilkins Co., 1942. Cloth, $6.00.

This popular yearbook is published for the sixtieth year in spite of many harassing circumstances. It is to the credit of the editors that, in spite of the bombing of their publishing works, they have suc-

[Continued on page 1564]

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[Continued from page 1562]

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Endoscopic Prostatic Surgery. By Roger W. Barnes, M.D. Octavo of 232 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Cloth, $6.00.

This thorough yet concise monograph was designed by the author as a text to which urologic house surgeons or other urologists could refer while learning the technic of endoscopic prostatic surgery under the supervision of an experienced operator.

With the aid of many clear illustrations, the author emphasizes such points as the anatomy of the all-important true and surgical capsules and of the prostatic blood supply.

Foremost among the indications for endoscopic prostate surgery is the training to resect accurately and quickly enough to keep the operating time to about one hour. If his series of transuretheral resections is comparatively limited, the operator should restrict utilization of this technic to the smaller glands until he has gradually worked up to the larger ones.

The author uses the Stern-McCarthy electrotome routinely but the Nesbit and Gibson one-hand modifications with the use of the free hand for rectal manipulation of the prostate are described.

With respect to the actual technic of resection, the strict necessity for keeping the loop within the area of the prostatic urethra is emphasized. The importance of the verummontanum as the guardian landmark of the external sphincter is also made clear.

In summary, the author describes endoscopic prostatic surgery as a comparatively safe, rapid, and almost painless means of alleviation, with shorter hospitalization time and end results that compare favorably with those of other methods of prostatectomy.

FEDOR L. SENGER

Creatine and Creatinine Metabolism. By Howard H. Beard, Ph.D. Octavo of 376 pages, illustrated. Brooklyn, N. Y., Chemical Publishing Co., Inc., 1943. Cloth, $4.00.

The author has reviewed all experimental and theoretic work on creatine and creatinine metabolism since 1926. He has added much new material and has correlated the chemistry and tests for creatine and its relation to clinical medicine.

The most important part of the book, from the reviewer's point of view, is its description of general muscle metabolism, the synthesis of creatine, and its conjugation from the simple amino acids by methylation. There is a chapter on creatine in relation to water metabolism and also one on creatine content in heart diseases.

The book is well written and should be in the library of anyone who is interested in biochemistry and metabolism.

MORRIS ANT

The Hospital Care of the Surgical Patient. By George Crile, Jr., M.D., and Franklin L. Shively, Jr., M.D. Octavo of 184 pages, illustrated. Springfield, Ill., Charles C Thomas, 1943. Cloth, $2.50.

This is a well-prepared handbook which describes the procedures used in caring for surgical patients in the Cleveland Clinic. One section, which is of considerable importance, is devoted to physiologic principles as related to surgery. Another section is devoted to the prevention management of surgical complications. A third part describes in detail most of the common hospital procedures.

The book will naturally be of great use to the surgical intern and also to the older surgeon who has neglected to keep abreast of the newer developments.

EDWARD P. DUNN

Diseases of the Skin. By Oliver S. Ormsby, M.D., and Hamilton Montgomery, M.D. Sixth edition. Octavo of 1,360 pages, illustrated. Philadelphia, Lea & Febiger, 1943. Cloth, $14.

This book in its previous editions has always set a very high standard and this edition is carrying on the tradition of the past. The book has been thoroughly revised and the subject-matter brought up to date. The references are complete and cover the literature well. Even rare dermatoses which are frequently not covered in the ordinary dermatologic text are adequately covered in this work. The illustrations are excellent and adequate to bring out the details mentioned in the text.

Altogether, this edition should be found in the library of all dermatologists who desire a complete reference work.

JOHN C. GRAHAM

Physiological Psychology. By S. R. Hathaway. Octavo of 335 pages, illustrated. New York, D. Appleton-Century Co., 1942. Cloth, $2.75.

The book offers nothing new from the standpoint of physiology of the nervous system. However, since it is intended to orientate students of psychology primarily in the physiology of the nervous system, it is presented in a simplified fashion to meet their knowledge and needs.

The material is comprehensive and up-to-date.

Aside from chapters on emotions, sleep, and intelligence, there is very little of psychology included in the book.

JOSEPH L. ABRAMSON

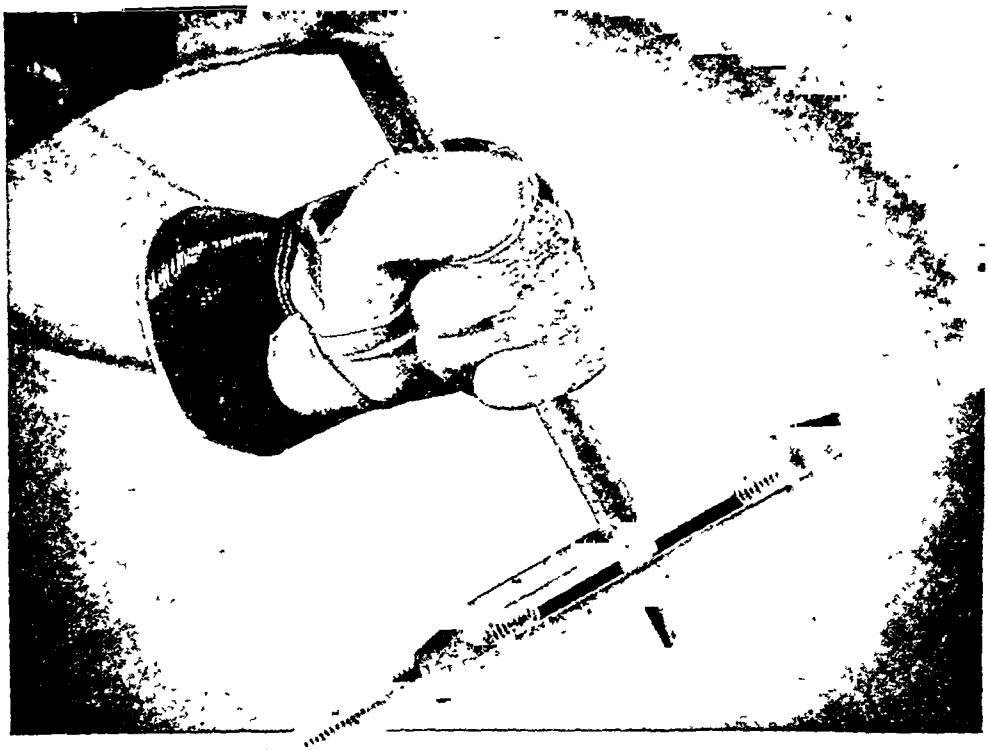
Burns, Shock, Wound Healing and Vascular Injuries. [Military Surgical Manuals, Vol. V.] Prepared under the Auspices of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Octavo of 272 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Cloth, $2.50.

A concise manual prepared by various specialists in the field of surgery for medical officers of the armed services.

As indicated by the title, the book is divided into four sections. The material is well organized and outlined for rapid review of diagnosis and treatment. Both sides of controversial matters are discussed. Five chapters on burns comprise the largest section of the volume, with references to relevant articles at the end of each chapter. The sections on "Burns" and "Vascular Injuries" are both profusely illustrated. The chapters on "Shock" and "Wound Healing" present the latest thoughts on these subjects.

This work should prove to be of invaluable aid to those who are preparing to meet the surgical emergencies of today.

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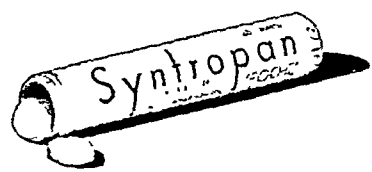
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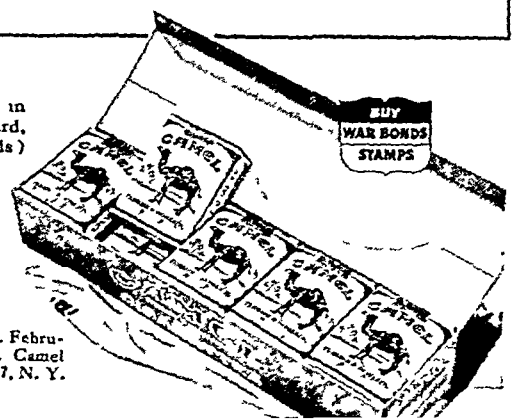
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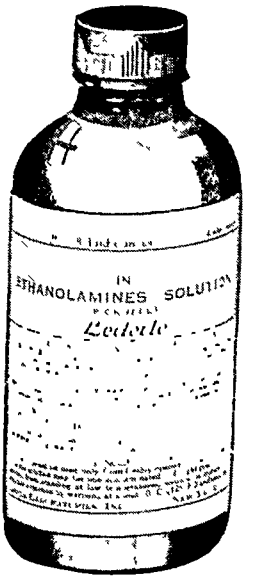
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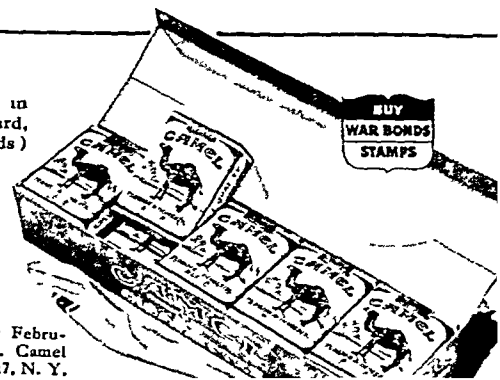
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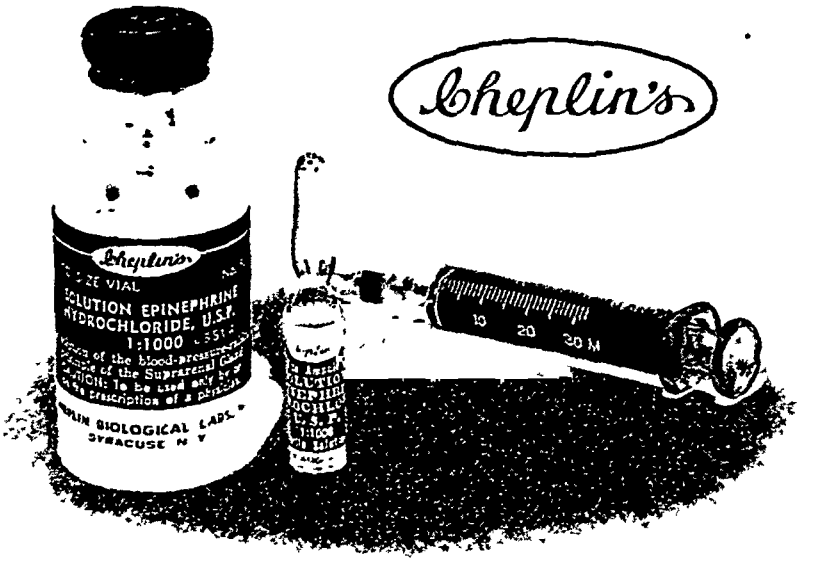
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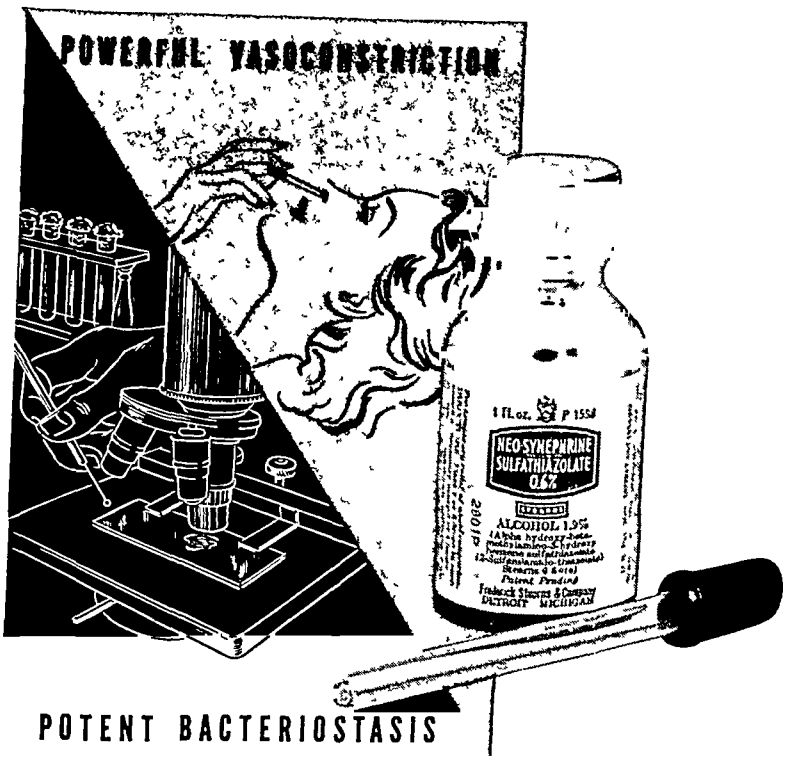
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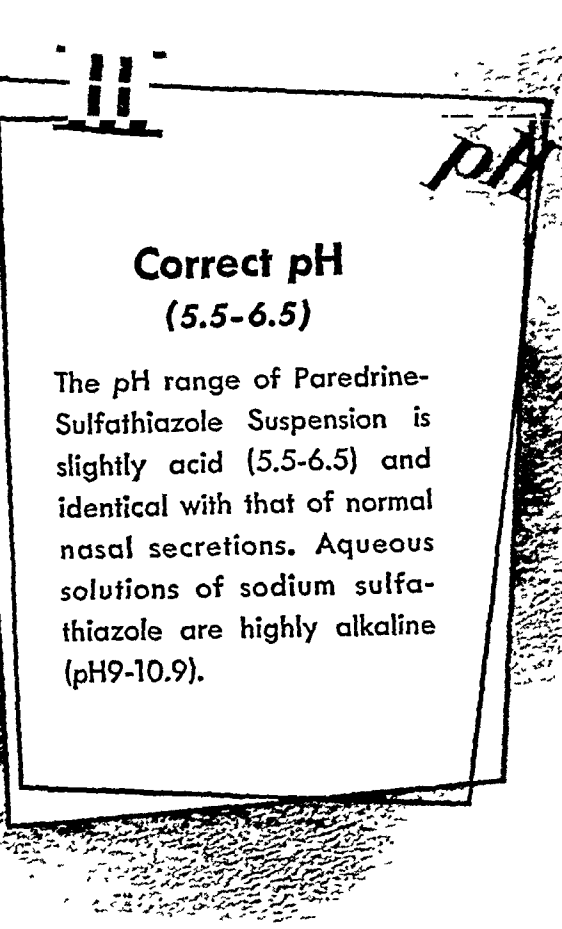
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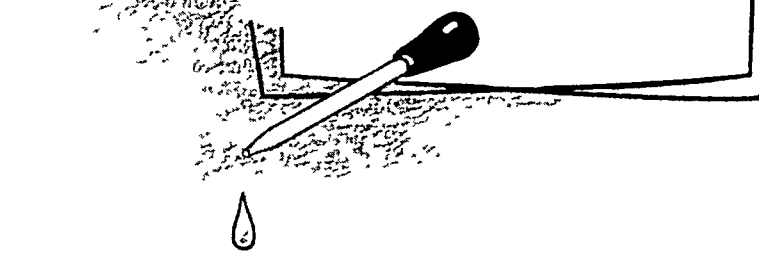
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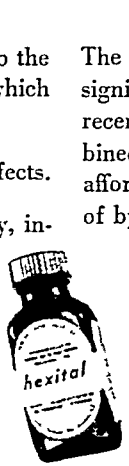
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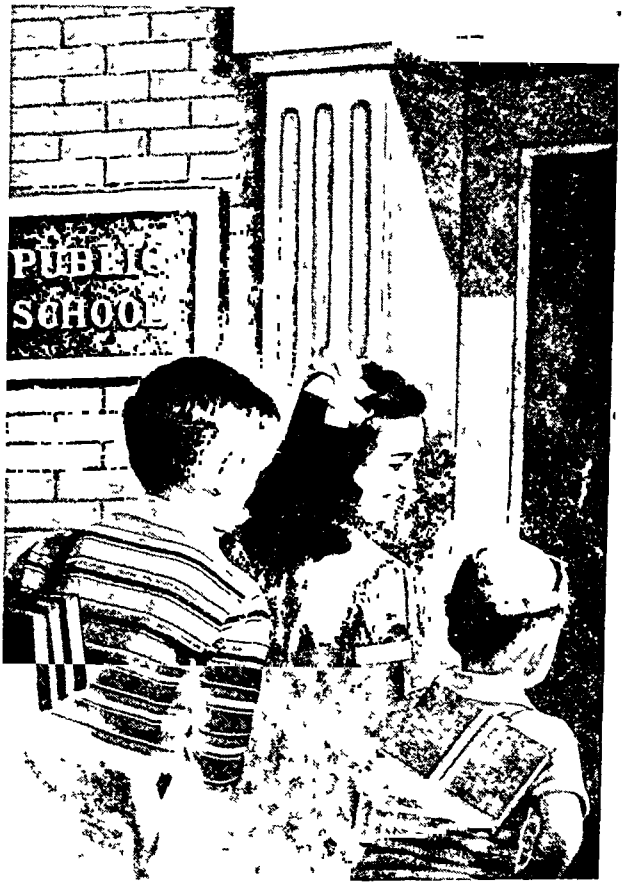
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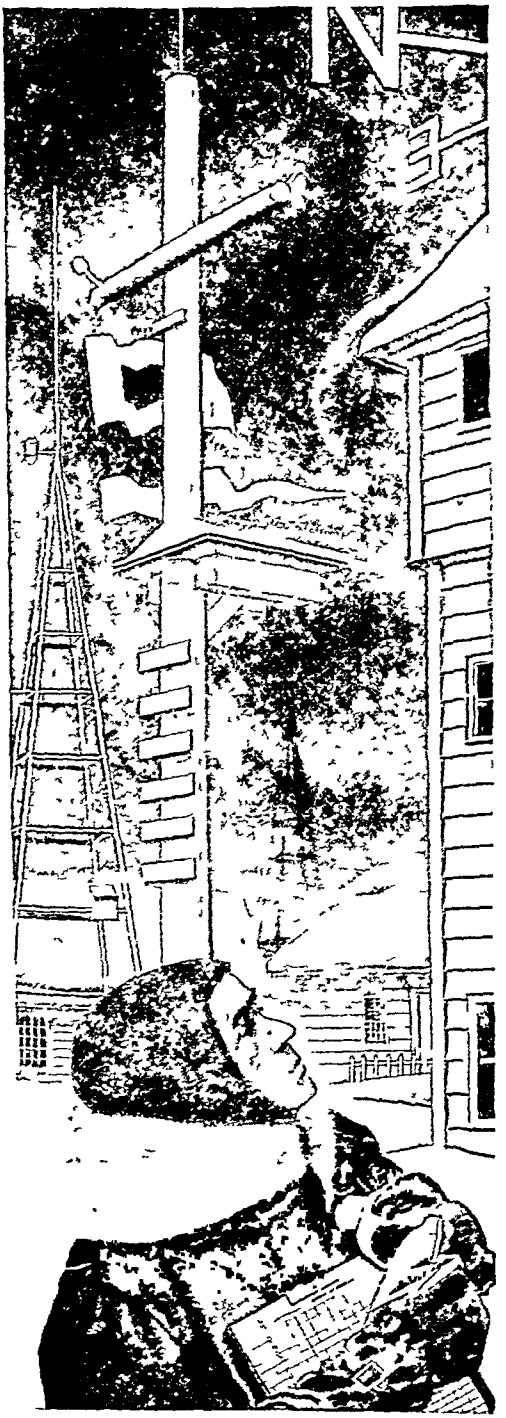
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Friedlander bacillus (*Klebsiella pneumoniae*)	5 000 million
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**Hemolytic, non-hemolytic and viridans

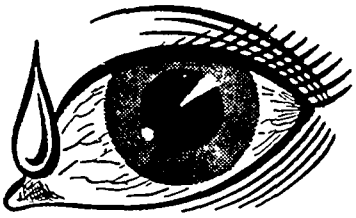
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1 Gallup, G , American Institute of Public Opinion Survey, February, 1943.



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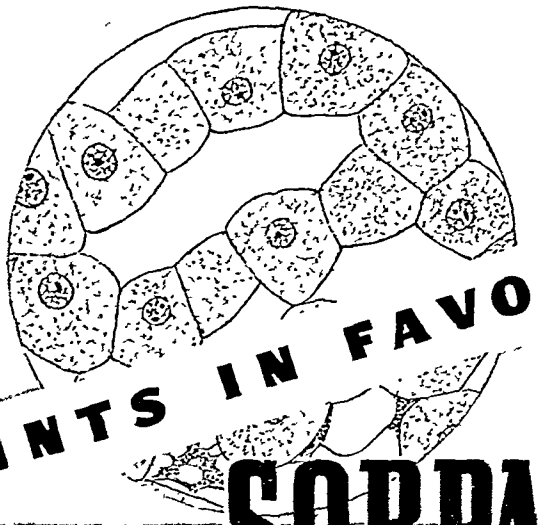
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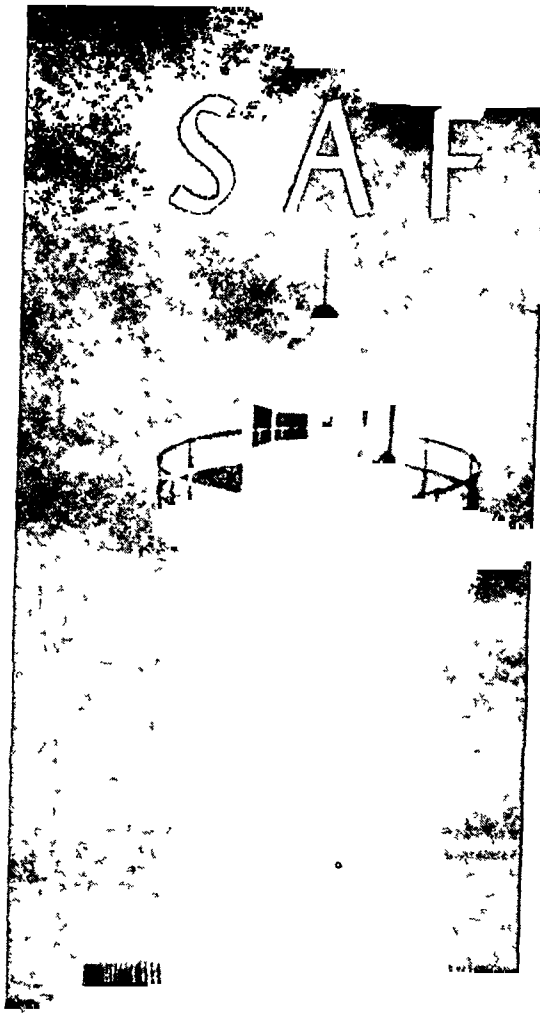
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*The Postsurgical Biliary Syndrome Rev. Gastroenterol. 10-62-69 (Jan.-Feb), 1943

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NEW YORK STATE JOURNAL OF MEDICINE

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VOLUME 43 SEPTEMBER 1, 1943 NUMBER 17

Editorial

Armed Forces Must Have 6,000 More Physicians by January 1*

The armed forces must have 6,000 additional physicians by January 1, 1944, the *Journal of the American Medical Association* reports in an editorial in its August 7 issue. The *Journal* says:

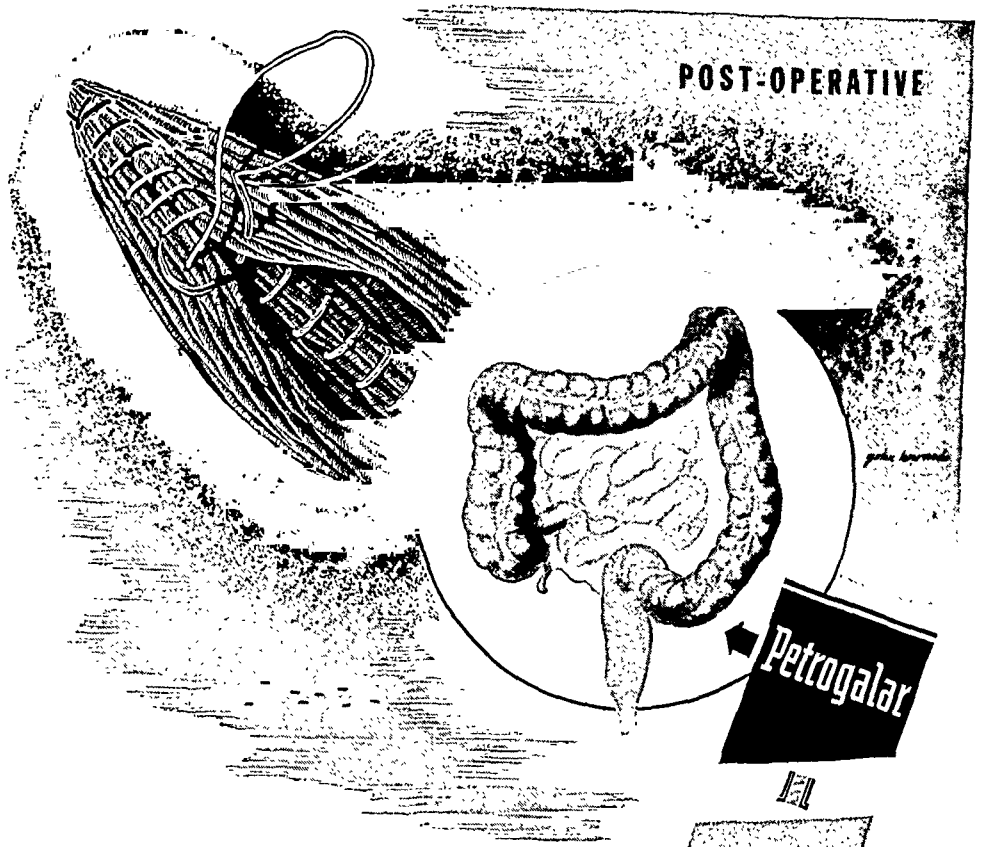
"At a conference of the Directing Board of the Procurement and Assignment Service for Physicians, Dentists, and Veterinarians, held on July 31, with the War Participation Committee of the American Medical Association and in the presence of Mr. Paul V. McNutt, chairman of the War Manpower Commission, and representatives of the Army and Navy medical departments and the Public Health Service, it became apparent that the medical profession must produce toward the winning of the war an additional six thousand physicians for the armed forces before January 1, 1944. Pursuant to a realization of this objective a directive has gone to the generals in command of the various service commands authorizing them to induct into the service physicians between the ages of 38 and 45 who have been declared available by the Directing Board of the Procurement and Assignment Service for Physicians, Dentists, and Veterinarians and who are otherwise subject to Selective Service.

"The needs of the armed forces are real. The members of the War Participation Committee raised with the representatives of the various governmental agencies all the questions that have from time to time challenged the need; the challenge seems to have been met effectively. Indeed, the intimation was made clear that the needs of the armed forces will be met by specific regulations of the Selective Service Administration or the enactment of necessary legislation if required. All physicians up to 45 years of age who have been indicated as available have therefore placed on them now the responsibility for an immediate decision as to their enlistment with the armed forces. The need is so positive that questions of essentiality of men in positions of teaching and research and in industrial medicine are likely to be rigidly reviewed in the near future with a view to extracting from civilian life every one that can be spared.

"As the war continues and intensifies, new needs for the services of the medical profession become apparent. An army in motion and one engaged in the kind of aggressive combat that now concerns our armed forces needs physicians in even greater numbers than have heretofore been demanded. Many thousands of interned aliens and prisoners are now the burden of the United States and must be given medical care.

"If there is any physician who still hesitates under these circumstances, he should realize the added advantage to him of accepting now the commission that is proffered. Should it become necessary in the near future, as seems quite likely, to enlist new activity by the Selective Service Administration and the Officers' Procurement Service to bring in the six thousand physi-

* This editorial is reprinted at the request of the A. M. A.



for the management of constipation

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is the antibodies in the blood. All these and other factors play their essential role in the achievement of immunity.[1] It is of more than passing interest that antitoxic immunity does not necessarily follow the recovery from an attack of clinical tetanus.[2] Since all these factors, and perhaps others, play essential roles in the attainment of immunity, we cannot assume that complete immunity is predicated upon a given level of antitoxin in the blood.

Recent military experiences with tetanus in the British Army lend support to this immunologic thesis.[3] In the British Army the practice has been to inoculate the soldiers with two doses of 1 cc. of tetanus toxoid at six-week intervals. Only recently has a boosting dose been given six months later, a vital step in the proper elevation of the level of tetanus antitoxin in the blood.[4] Though the tetanus bacillus is not indigenous to the soil of the Near East, nevertheless clinical tetanus has occurred in men presumably actively immunized, with resulting fatalities. Analyses of these failures would seem to indicate that they were due for the most part to the breakdown of the local factor, for large masses of necrotic tissue played the role of culture medium instead of preventing invasion. A minor role may have been played in some instances by an insufficient level of blood antitoxin due to the lack of a boosting dose shortly before the battle was joined.

The implications of such experiences are plain. The delusion must not be harbored that toxoid injections mean semi-permanent immunity at all events. A boosting dose should be administered shortly before the soldier enters the battle line. Careful and complete surgical removal of all dead tissue should be performed at the earliest possible moment. If this is impossible of achievement, tetanus antitoxin may be indicated in spite of the presence of active immunity, which is normally sufficient but is insufficient in the wake of excessive proliferation of tetanus bacilli in large areas of necrotic tissue. By such precautions the already greatly lowered incidence of tetanus may be further reduced to the vanishing point.

[1] Topley, W., and Wilson, G. S.: The Principles of Bacteriology and Immunity, Second Edition, London, Edward Arnold, 1936, part 3.

[2] Cooke, J. W., and Jones, F. G.: J.A.M.A. 121: 1201 (April) 1943.

[3] Boyd, J., and Maclennan, J.: Lancet 2: 745 (Dec. 26) 1942.

[4] Bigler, J. A., and Werner, M.: J.A.M.A. 116: 2355 (May 24) 1941.

Correspondence

MEDICAL CENTRE
WHITE PLAINS, NEW YORK
August 6, 1943

The Editor
NEW YORK STATE JOURNAL OF MEDICINE

Dear Sir:

This letter is prompted by an editorial in the March 27, 1943, issue of the *J.A.M.A.*, and subsequent notes, especially "Current Comment" in the July 11, 1943, issue: "The Facts on Procurement of Physicians from New York State." These "facts" are just another example of how statistics devoid of explanation may not provide the full story and may even give the false impression that physicians in New York State by-and-large are unwilling to serve in the armed forces of the United States.

If this were an article for publication, it might be entitled either "How the Army Can Procure Additional Physicians" or "Why Procurement Quotas of Metropolitan Areas Are Not Filled."

First, let me make a statement, which I cannot support with appropriate figures but which I believe to be correct, namely: that probably no other single profession has volunteered or is serving so freely in the armed services as the medical profession. A large proportion of these men could have obtained draft exemption and many are beyond the Selective Service age limit, but they all have volunteered at more or less personal sacrifice. There are still many more such physicians willing and ready to serve; some are under 38 years of age and some over.

Probably the greatest deterrent to physicians from the metropolitan areas joining the Army is the economic factor. Most of these men are married and have family and business obligations. They may own homes and offices, not fully paid for; they may have notes due at banks or bills for equipment against which regular payments must be made; and most of them have large insurance premiums to pay. In other words, they have a fixed overhead which must be met, month by month and year by year. What seems to be lost sight of is the fact that this fixed overhead is much higher in metropolitan areas than in the smaller, isolated cities and towns. Many doctors would be perfectly willing to go into the Army if their Army pay would cover fixed overhead, plus enough for their families to live on. The pay of a lieutenant or captain will not do this, as a rule.

What is the solution of the problem? The solution is for the Army to give its medical officers a "break." The cry now seems to be that few additional majors can be appointed from civilian life, because there are so many captains in the service awaiting promotion. There would be room for many hundreds and probably thousands of new lieutenant colonels and majors if medical officers were handled the same as line officers. For instance, according to peace-strength tables of organization, regimental surgeons and battalion commanders of infantry regiments hold the rank of major; however, according to the latest word I

cians that are so certainly required, those recruited by that technic will inevitably begin their service with the minimum commission that is offered—namely, that of first lieutenant. Until that technic is installed, the men of special competence and of years beyond those of the recent graduate have the assurance of careful consideration and a commission more nearly in accord with age and experience.

"The call here made has the approval of the Directing Board of the Procureme and Assignment Service and of the War Pa ticipation Committee of the Americ Medical Association. The medical pr fession may well be proud of the fact that has been the only group given, by directiv of the President, the responsibility of mai taining service in civilian life and at the sam time supplying the needs of the arme forces. Let us not fail in meeting fully th trust that has been placed upon us."

Red-Cell Transfusions

The extensive and universal employment of blood plasma leaves unused the residual red cells. It is almost shocking that in these days when we are so conscious of values that such a useful by-product should have been discarded. In anemia, a prevalent disease condition calling for the addition of erythrocytes, it is noteworthy that the needed red cells, residual from the separated plasma have not been widely utilized.

Red cells were first used for transfusion purposes by the British during the first World War.[1] It may be that the second World War supplied the necessary impetus to the same subject, for several reports have recently appeared advocating the use of red cell suspensions instead of whole blood for transfusion purposes.[2,3,4] In this country this natural use of an invaluable by-product is only lately coming into medical practice.[5] The time has come for us to learn the technic of red-cell transfusion, which has been carefully and fully developed.

Blood from two donors is usually given at a single transfusion. The cells are matched against the recipient's serum to guard against untoward iso-agglutinin reactions. The erythrocytes are then suspended in a physiologic saline solution. Needless to say, the most rigid precautions are taken to insure sterility. To obtain maximal survival it is advisable to employ red cells which have been withdrawn within three days previous to the transfusion. In such suspensions no hemolysis results after the addition of the saline solution. It has been shown that the survival time of erythrocytes in stored blood decreases rapidly after a storage period of more than seven days.[6] English workers have used red-cell suspensions in a concentrated form.[2,3,4] This is advantageous in cases of cardiac insufficiency and other conditions with increased plasma volume. Concentrated suspensions permit the transfusion of large amounts of cells over a short period of time. Sufficient saline solution, however, must be added to prevent undue viscosity of the blood, thus facilitating the flow of blood during the transfusion. A solution of a 100 cc. or 150 cc. of saline added to the cells of 500 cc. of blood has been commonly employed.

The employment of red-cell suspension instead of whole blood for transfusions is a genuine measure of economy. Great quantities of red cells formerly discarded after the plasma was removed from blood now constitute a valuable and easily available by-product. The widespread use of red-cell suspensions will serve to lower costs because of the allocation of expenses between the plasma and red cells. Opportunities are now afforded for more liberal use of transfusions in cases of anemia by the frequent employment of red-cell suspensions.

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Limitations of Tetanus Toxoid

The demonstration of an effective titer of antitoxin after inoculation with antigen or toxoid is not a certain guarantee of immunity. Several factors are concerned in the determination of effective resistance.[1] There is the local factor which may successfully repel the invader at the source. Also actively engaged in this combat against the invading organism are the cellular and tissue elements. Another agent, but far from the only factor in the battle for immunity,

Symposium on Plasma

THE PHYSIOLOGY OF SHOCK AND OF BLOOD SUBSTITUTES

H. NECHELES, M.D., Ph.D., Chicago

SINCE 1920, twelve different definitions of shock have been advanced by leading workers in the field. These definitions vary from such extremes as "a decrease in the effective circulating volume of blood plasma," "circulatory deficiency, neither cardiac or vasomotor in origin," "a progressive vasoconstrictive oligemic anoxia," a "state of depression of all the reflexes accompanied by circulatory depression," "the collapse of the circulation from overstimulation of the sympathetic nervous system," to, finally, a "condition of suddenly developing general damage."[1] From the number and wide divergence of these definitions it can be seen that, as yet, there is no complete agreement as to what shock is.

Recently, the work of Knisely and his coworkers[2] on capillaries has established the fact that one of the first signs of damage and developing traumatic shock in the animal is a stickiness and clumping up of red blood cells in the circulation. This process was observed to occur immediately after the diffusion of substances (thrombokinetic) into those capillaries of the traumatized area, through which blood was flowing. By the action of these substances, a sticky film, surrounding the red cells, was produced. All the red blood cells of the animal thus were changed by flowing through the traumatized area. In this way increased viscosity and slowed circulation may be initiated. One of the effects of the use of compression bandages on traumatized areas may be to prevent this phenomenon and, perhaps, thus to prevent shock.

This work seems promising and deserves systematic investigation because the morphologic changes in the blood seen by Knisely and his associates may mean a primary injury to the cardiovascular system, which may initiate the picture of shock.

Most authors agree that in shock a diminution of circulating plasma volume and changes in the peripheral capillary resistance occur.[3] The pallor of the skin and of the peritoneal surfaces in hemorrhagic shock has been noted early by both clinicians and experimentalists.[3] Cannon[4] has expressed the view that vascular changes occurring in shock serve a homeostatic purpose, redistributing the blood in order to maintain the functions of vital organs; vasoconstriction in certain areas may be an adaption of the vascular and vasomotor system to a diminished volume of circulating blood. Gesell[5] has shown that with a loss of only 10 per cent of the total blood volume, the blood flow through the submaxillary gland decreased more than 60 per cent. This occurred even though blood pressure actually had risen. Rein and Roessler[6] showed that with a loss of blood of 2 per cent of the body weight blood flow through the intestines, the femoral artery, and the inferior vena cava decreased 70, 62, and 15 per cent, respectively. Ten minutes later, with blood pressure back to near the control level, the blood flow through the femoral artery was 30 per cent above its control value, while the blood flow through the intestines was 20 per cent below the control level. Blalock and Levy,[7] Freeman *et al.*,[8] and others[1,3] have reported similar results. The former two groups believed that the occurrence of vasoconstriction in shock and, with it, an increase in peripheral resistance were most marked in the organs or tissues which, at the moment, were least active.

In shock, vasoconstriction and increased peripheral resistance on the one hand and capillary stasis and congestion on the other hand have been described by different authors.[1,3] Recently, Wiggers, in a critical review of the literature[3] and in his own systematic work on the hemodynamics of shock,[9] has provided added evidence that the peripheral resistance may actually be decreased in severe hemorrhagic shock.

It is felt that in a consideration of the mechanics of shock the implications of changes in total peripheral resistance may be misleading. Granted that there may be selective vasoconstriction in one or more areas of the body, this vasoconstriction, if sufficiently prolonged, would lead to such anoxia and accumulation of end products of metabolism that abnormal capillary permeability could be expected in such areas.

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have, war-strength battalions are commanded by lieutenant colonels, while the regimental surgeon remains a major, despite a tremendous increase in responsibility. It does seem as though the rank of the regimental surgeon could be raised to lieutenant colonel and that of the assistant regimental surgeon to major. Such a change in the tables of organization should not be too difficult to effect. At the same time the ranks applicable to many other assignments possibly could be raised. This would make available a greater number of commissions in the higher grades and thus make it possible for many doctors, who now cannot afford to do so, to enter the Army. I predict that someday the armed forces are going to need many of the group of physicians between the ages of 38 and 45 years. These men are willing to make sacrifices, but they should not be expected to make sacrifices out of all proportion to those of their brethren in other fields of endeavor who remain safely at home enjoying "business as usual."

The Army's policy of confining commissions from civilian life in the higher grades to specialists certified by one of the specialty boards also is open to question. One often wonders if the policy followed in World War I of appointing practically all medical officers in the basic grade of first lieutenant *was not fairer—not that I recommend this policy*, except for its downright fairness and freedom from partiality. As we all know, not all competent specialists are board diplomates; nor are all diplomates or fellows *necessarily* specialists, since many of the latter carry on a general practice. Many physicians conduct a limited practice, without need of becoming "certified," and are as competent specialists as diplomates in their own respective fields—they simply have found no need for becoming "certified." Then, there are many "old-timers" who are excellent general practitioners. These non-certified specialists and general practitioners do not look too kindly on the World War II policy of commissioning only specialty board diplomates in grades above that of captain, and accordingly refrain from applying for or accepting commissions in the lower grades.

There is another group of physicians available and willing to serve in the Army. These are men (several in my acquaintance are under 40 years of age) who are perfectly able to carry on a heavy private practice and yet have been rejected by the Army because of a minor "physical disability." It is my observation that a man with his faculties intact who can stand up under the strain of private practice these days certainly is fit for general hospital or station hospital duty. A more liberal waiver policy would expedite the procurement of medical officers.

Last but not least, physicians should not be forced literally to fight their way into the Army. After all, the "brass hats" are not doing the doctor any great favor in permitting him to give up his practice to go have his head shot off. Treating applicants with courtesy and consideration will help maintain the doctor's interest, as will prompt and expeditious handling of inquiries, physical examinations, and "processing," lest the applicant become disgusted with apparently needless waste of time and change his mind. Prompt replies to inquiries and early action on applications would expedite procurement.

To summarize, I have suggested four means of increasing interest in the Army and, therefore, the number of physicians volunteering and entering the service:

1. Change tables of organization to provide for a greater proportion of higher grades in the Medical Corps.
2. Discontinue specialty "certification" requirements for commissions in grades above that of captain.
3. Institute a more liberal and uniform waiver policy as regards minor physical disabilities.
4. Afford more courteous, considerate, and prompt handling of procurement administration.

The foregoing comments, of course, are predicated upon the presumption that the Army needs a large number of additional medical officers, as would seem indicated by frequent appeals and editorials in the *J.A.M.A.*, and the recent announcement by the Director of Selective Service that a million men will be added to the armed forces during the next year.

Very truly yours,
CHARLES A. COLLINS, M.D.

ANNOUNCEMENT

All physicians who have been previously physically rejected for commissions in the Army or Navy should apply for re-examination at once, as the Services have changed their physical requirements and those previously rejected may now find that they are eligible for commissions.

COMMITTEE ON WAR PARTICIPATION
Medical Society of the State of New York

more often it seems to begin as impending shock, sometimes progressing slowly at first, then more and more rapidly, and invariably leading to death if its cause is not interrupted in time and if it is not counteracted in time by sufficient body mechanisms and reserves or by therapy.

Low blood pressure is considered both by clinicians and by many investigators as a *sine qua non* for the development of shock. From our early work on hemorrhagic and traumatic shock we concluded, however, that blood pressure is not a good index of the seriousness or of the prognosis of an animal in shock.[17] In one condition particularly—thermal trauma—we have found in the dog, cat, and rabbit,[18] and others have found in the human being,[19] that blood pressure may stay at or above normal for prolonged periods of time, while all other determinations and signs and symptoms indicate a grave condition of the experimental animal or of the patient.

In extensive work on shock following hemorrhage, trauma, and burns, we have observed that one of the best indices of the condition of the animal is the carbon dioxide content of the blood plasma.[21,24] This value indicates the degree of acidosis, which itself is a function of the intensity and duration of the tissue ischemia and anoxia.

Wiggers and his colleagues have recently reemphasized the importance of both the degree and the duration of hypotension in the development of irreversible shock following hemorrhage in dogs.[9,21] They have also described a technic of repeated bleeding which results in a state of shock from which the animals fail to recover when reinfused with the same amount, or more, of whole blood than was originally withdrawn. We feel that while Wiggers' method may be useful in developing a profound and irreversible type of shock, yet determinations of CO_2 in similar experiments may give a further indication of the condition of the animal at any particular moment. Moreover, the animal in irreversible shock is hardly the ideal test object for the study of the treatment of shock, for, by definition, nothing can halt its progress toward death. Practically, what we are seeking is an accurate and simple method of determining a stage intermediate between posthemorrhagic hypotension and irreversible shock—a stage from which the animal will die if inadequately or improperly treated, but from which he will recover with correct treatment.

Our experiments on shock were planned in such a way as to lead to the death of all of the untreated animals. Our procedure of producing shock by graded hemorrhage is as follows:[22,23] Total blood volume is calculated as one-thirteenth of the body weight. The unanesthetized dog is bled* 20 to 30 per cent of its estimated blood volume; one-half hour later an additional 10 to 20 per cent, and, if necessary, half an hour later an additional 10 per cent of the estimated blood volume are withdrawn. Determinations of the arterial plasma CO_2 are repeated at intervals and the infusion of the restoring fluid is administered at a particular plasma CO_2 level.

We have found the determination of the arterial plasma CO_2 to be the best method of evaluating the animal's condition in shock and predicting its response to various infusions. When the hemodynamic criteria of shock—hypotension, decreased pulse pressure, and increased circulating time—are present, we can be fairly certain that an animal with a moderately low plasma CO_2 content will not survive if untreated or infused with crystalloid solutions. However, we can be equally certain that he will survive if given iso-osmotic protein solutions, whereas an animal with an extremely low CO_2 generally will be in irreversible shock and will be dead the next morning even after what was apparently a complete recovery a few hours after infusion with iso-osmotic serum or plasma, and probably even whole blood.

Each restorative fluid is evaluated from the results of assays on a number of test animals at various levels of arterial plasma CO_2.[24-25] Numerous controls have shown that when the blood plasma CO_2 is below 10 volumes per cent, restoration is generally only temporary when even iso-osmotic protein solutions are administered. If the CO_2 is between 10 and 15 per cent, a few animals may survive following saline infusion, and many more will live with serum, plasma, or gelatin. At a CO_2 level between 15 and 20 per cent, a few animals will survive without therapy, and more will survive with saline infusion. Once these values have been established, it is relatively easy to evaluate any blood substitute. Because it is technically easier to lower the CO_2 level to 10 to 15 per cent without too high a mortality rate before therapeutic infusion, we have chosen this level as the critical one in our experiments. If a blood substitute can restore animals with plasma CO_2 between 10 and 15 per cent in the greater number of cases, we consider it good, because the mortality in this series, if untreated, or if treated with crystalloid solutions, is high. It should be stated here that the survival times of animals receiving therapeutic infusions of blood substitutes could be predicted with a fair degree of accuracy from the recovery of their plasma CO_2 values.[24-26]

Our studies on shock and blood substitutes have revealed that the state of hydration of the

* Under local anesthesia.

As a matter of fact, Wiggers and his colleagues have shown that such a selective area seems to exist in the upper small intestines, and they stress the occurrence of hemorrhagic changes in this area as a *sine qua non* for the evidence of whether an animal was in true shock following severe hemorrhage.[3,9] We have to assume here, however, that different areas must have a different sensitivity to anoxia. This question of selective sensitivity is supported by observations on hemorrhagic shock by Knisely and his associates. They found a practically complete cessation of capillary circulation through striated and smooth musculature and a persistence of capillary circulation through only a few vital organs.[2] Arteriovenous anastomoses may have played a role in shunting the blood back to the veins from the areas with capillary constriction (vide infra-).

The skin is evidently the one system with most evident and prolonged vasoconstriction during most conditions of shock. Yet no histologic changes in the skin of human beings or animals in shock have been described.[3] On the other hand, hemorrhagic changes in the small intestines have been observed by our group and by many others.[3] The capillaries of the intestinal mucosa and the mucosa itself seem to be most sensitive to anoxia.

In the consideration of peripheral resistance and of widespread constriction of arterioles and capillary areas, one important physiologic factor generally has been neglected—namely, anastomoses between arteries and veins, the so-called arteriovenous anastomoses. It is known that these anastomoses occur in many parts of the body and are particularly numerous in the small intestine.[10,11] It is believed that they serve a purposeful end in shunting the blood directly from the arteries into the veins in such areas in which metabolism is temporarily low, thereby saving the cardiovascular system an unnecessary amount of work.[10,11] An opening and closing mechanism has been described for these anastomoses. Heat, cold, ultraviolet radiation, and drugs like histamine, lactic acid, and atropine have been described to open these sphincters, and adrenalin, morphine, pituitrin, and ergotamine to close them.[10–15] External heat can open so many anastomoses that the venous blood of the arm may appear arterial in color and have increased pressure and pulsation.[10,11]

The diameter of the anastomoses is considerably wider than that of the capillaries of the same region, and the connecting veins are particularly thin-walled and large. If in a large area of the body these anastomoses should stay closed for some time, the peripheral resistance of this area would be maintained. If, on the other hand, these anastomoses would stay open in a large area, the peripheral resistance of this area would be low. At the same time, the capillary bed in this region would be anoxemic for a period of time and the capillaries might become permeable to plasma and finally to red cells. Penner and Bernheim,[15] and Klemperer and associates[16] have assumed a similar mechanism together with arteriolar constriction to play a role in the development of ulcers and of inflammatory and hemorrhagic changes in the intestines during the terminal stages of various diseases. Their work may have an important bearing on the vascular mechanics of shock in general.

If in a large area like the splanchnic bed the arteriovenous anastomoses would open and if, furthermore, no vascular area comparable in size to the splanchnic one would compensate by vasoconstriction, systemic blood pressure would drop to low levels; at the same time, venous return to the heart would increase at first, and even after some loss of plasma has occurred it may not show much change for some time, a fact which has been found to occur in shock and which has puzzled observers.[3]

We do not know, as yet, enough about the normal physiology and particularly about the innervation of the arteriovenous anastomoses,[13] nor enough about their pathologic physiology during shock, and we therefore, cannot draw any definite conclusions. We want to stress, however, that further knowledge of this important link in the circulation would be of greatest importance for the understanding of shock. An increase or a decrease of total peripheral resistance may mean little when we think of the possibility that large areas, such as the splanchnic bed, may have an increased rate of blood flow and yet may be anoxic for prolonged periods of time because of an opening of the arteriovenous anastomoses, while another area, like the skin, may compensate by vasoconstriction, with the result that there may be no important change in the total peripheral resistance. Thus, the more important thing to know is whether large and susceptible (vide supra-) areas of the body may be anoxic for prolonged periods of time.

An additional factor to be considered in the mechanism of shock is the venous sphincters of the intestines and of the liver. The occurrence and distribution of both the arteriovenous anastomoses as well as the venous sphincters, vary in different animals. This latter fact has to be considered seriously in the interpretation and comparison of the results of experiments and observations in different animals and in man.[15,16]

We know one thing for sure about shock—that it is not a static condition but a dynamic and, in its advanced stages, a rapidly progressive condition. It may begin with primary shock, but

total calculated plasma proteins before the burn. Another fact is worth mentioning: although both patients were on a high protein-vitamin-caloric diet after the third day of the burn, their total blood proteins stayed at low levels (ten to thirteen days after the burn). We wonder whether protein absorption or utilization was impaired. However, stools were normal, and the urine contained only a trace of albumin for a few days. We believe that serum therapy saved these patients from ultimate irreversible shock. On the basis of this and of previous experience[17] we have suggested a modification of Harkin's formula for the treatment of burns, which Dr. Levinson will describe. On the fifth day after the burn a high degree of anemia developed which made it advisable to administer whole blood. The cause of this anemia of burns is not known as yet. We are trying to investigate this phenomenon in dogs in which, so far, we have found the same late occurrence of anemia.

In a few burn cases, analyses of the blister fluid and of the blood plasma were carried out simultaneously.[29] Total plasma proteins and the albumin/globulin content and ratio were determined in both. The interesting result was that the albumin content in the blister fluid was fairly constant, approximating that of the blood, but that the globulin content showed marked variations. It may be low, but it may be high, and was usually independent of the albumin level of the blood or of the blister fluid. Again, with progressively greater degrees of capillary damage, more of the larger globulin molecules can escape from the circulation.

The assumption of basic unity, a single cause for various similar events, has ever been one of the outstanding human traits—sometimes for the good and sometimes for the bad.

Many of us have looked for a common primary cause for shock produced by any of the various methods of the experimentalist or by nature. Moon and others[1,28] felt that the posthemorrhagic condition was not true shock and omitted it from their system. Blalock,[30] Wiggers,[3,9] our group,[23] and others[1] have shown conclusively that a true posthemorrhagic shock can occur. Wiggers[3] has called our attention to the possibility that the primary cause of shock following various events or procedures may not always be the same.

In our own work, we have seen many different phenomena occurring in groups of experiments in which shock was produced in animals by various methods, such as hemorrhage, traumatization, and burns. These differences may be side issues, and shock yet may have been due to a common factor. On the other hand, the differences may point to fundamental dissimilarities of the primary cause of the shock in each of the groups of experiments.

Following simple hemorrhage as the capillary pressure falls, extravascular water shifts into the circulation rapidly, and, since initially red cells and plasma had been removed in the same proportion, now the red cell concentration decreases —i.e., hemodilution occurs. It is only during the later stage that the hemoconcentration, typical to most other pictures of shock, develops. It is apparent that shock begins at a rather advanced stage of hypotension with acidosis, slowed circulation, etc.

Following severe traumatization, hemoconcentration develops quickly and progresses rapidly. In this condition much blood may be lost into the traumatized tissues, but ultimately more plasma than red cells is lost locally so that generally hemoconcentration then sets in. In the early stages, however, a hemodilution is not uncommon. Could a nervous or reflex factor play a primary role?

Following severe burns, with the animal in a grave state of shock, as indicated by acidosis, slow circulation, and hemoconcentration, blood pressure is either normal or elevated for prolonged periods of time; this is in contrast to the conditions of shock produced by other means. Gastrointestinal motility is greatly increased and gastric secretion and acidity may be augmented. This is in contrast to traumatic shock in which no appreciable change or depression of gastrointestinal functions occurred.[31,32] If a limb is burned after denervation, blood pressure either falls or else does not rise, as in typical experiments on innervated limbs. We have found that the rise of blood pressure following burns is apparently due to a number of factors—reflex, hormonal, and toxic (hemolysis). The latter, hemolysis, rarely occurred to any significant extent following anesthetic, drug, traumatic, or posthemorrhagic shock, but it was a common occurrence in burns.[18]

Thus we may conjecture that the primary, initiating mechanisms of shock may be different, but that eventually they all may lead to a common final picture.

The experimental approach to a finer differentiation of these different mechanisms is difficult but not impossible. With some of the best laboratories of the world working actively in this field, the solution of these problems may be one of the great contributions to mankind arising from this war.

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experimental animal or the human patient may be a deciding factor in the prognosis of shock.[23–26] This is of importance particularly in this war, where much of the fighting takes place in excessively hot regions and in mechanized equipment, where dehydration owing to lack of water, excessive sweating, etc., may occur frequently. We have found a seasonal variation in the susceptibility of our animals to hemorrhagic shock, due apparently to a better state of hydration during the cold season. We have found it necessary, therefore, to conduct control experiments throughout the year and not to rely on older control series in the assay of each particular blood substitute. This is a factor, not reported and apparently not heeded by other investigators.

In our studies we have found that even normal, nondehydrated animals will not withstand infusion of concentrated solutions during shock as well as isotonic plasma or serum containing the same amounts of proteins. In dehydrated animals in more severe degrees of shock, the response to isotonic solutions is not so good as the response in well-hydrated animals, but it is still fairly satisfactory. Dehydrated animals in various degrees of shock, receiving concentrated solutions of albumin, plasma, or serum, exhibit neither as satisfactory a recovery of blood pressure and plasma CO_2, nor as good survival times as normally hydrated animals infused with the same solutions. The cardiovascular system apparently is subjected to a considerable strain during and shortly after the infusion of concentrated solutions; pulse pressure is increased, and the heart seems to pump against a greater resistance, probably against the increased viscosity of the blood caused by the administration of concentrated solutions. Furthermore, we and others have noticed that the administration of the considerable amounts of sodium citrate solution contained in concentrated plasma may lead to hypocalcemic tetany, an undesirable factor in animals or human beings in severe shock.[25]

These disadvantages of concentrated plasma protein solutions, particularly in dehydrated animals or human beings in shock, can, I believe, be explained satisfactorily. During and following hemorrhage, extravascular fluid reserves shift into the circulation. One of the first signs following hemorrhage is a dilution of the blood, indicating this process. During uncomplicated hemorrhage, this tendency to draw fluid into the circulation and thus to dilute the blood may persist over considerable periods of time, depending upon the water reserve of the individual animal.

When these fluid reserves are exhausted, however, because of prolonged or recurring hemorrhage, and when the condition of shock is serious enough, hemoconcentration begins to develop. In other words, the animal continues to lose fluid but cannot draw fluid back into the circulation. At this point, in animals subjected to repeated hemorrhage, the classical picture of shock, as described by Moon and others,[1,27] develops.

The use of concentrated solutions of plasma, serum, or albumin in cases of shock has been based on the assumption that fluid should be withdrawn from the extravascular fluid reserves or from areas into which it had been lost through capillary trauma or leakage. If the extravascular water reserves of the body are exhausted, or if an extensive loss of fluid into a traumatized area has interfered with circulation to such a degree that reabsorption is hardly possible, we no longer can expect these solutions to have good effects. In fact, in such cases fluid will be withdrawn from vital centers already damaged by prolonged tissue ischemia and anoxia[24] and death from internal, extravascular dehydration may occur despite a fairly good plasma volume. We feel, therefore, that we are safe in warning the profession against using concentrated solutions in severe shock, particularly when dehydration may be present.

In numerous experiments we have studied the fluid and protein shifts in hemorrhagic shock before and after infusion of various substances.[28] It has been found that small but significant amounts of albumin may shift in and out of the circulation rather rapidly. However, in conditions in which capillary damage is more severe, the larger globulin molecule escapes from the circulation, too.

We have followed protein shifts in a few patients with 45 to 50 per cent of their body surfaces severely burned.[29] These patients were in shock. They were losing plasma continually, as indicated by recurring hemoconcentration. During this process of hemoconcentration, blood pressures did not change appreciably and gave no reliable indication of the condition of the patients.

We were surprised to find that large infusions with human serum, which, during the first twenty hours amounted to more than the total calculated blood volume of these patients, did not permanently restore the plasma volume. It seems that the amount of plasma protein and of water lost from the blood and from the tissues was so considerable that the large amounts of infused proteins and of water were utilized for repletion of plasma and of organ fluid and protein levels, and hemoconcentration tended to develop again and again within the next two to three days.

One of these patients received 92 Gm. and the other 143 Gm. of serum proteins in excess of the

to prepare new rubber tubing at the Serum Center:

1. Boil twenty minutes in 4 per cent C.P. sodium hydroxide solution.
2. Rinse with tap water under pressure for one minute.
3. Boil ten minutes in 0.5 per cent C.P. acetic acid solution.
4. Rinse with tap water under pressure.
5. Boil twenty minutes in distilled water.
6. Rinse thoroughly with distilled water under pressure.

Used rubber tubing should be discarded when it becomes dark and discolored because of possible deterioration. The safety of rubber tubing becomes questionable after 10 preparations; tubing should never be used after 15 preparations. Used rubber tubing is cleaned as follows:

1. Rinse with tap water under pressure and inspect tubing from time to time under a strong light to see that all foreign debris has been removed.
2. Boil twenty minutes in distilled water.
3. Rinse thoroughly with distilled water.

Glassware.—After preliminary rinsing in tap water, glassware is cleaned by immersion in standard acid cleaning solution† for at least four hours. This is followed by thorough rinsing with tap water and finally distilled water. All traces of acid or alkali (soap) must be removed in washing glassware or other equipment because these substances can denature plasma proteins and cause reactions when plasma is given intravenously. It is also of paramount importance to protect clean equipment from exposure to dust. Dust may contain thermostabile pyrogenic substances.

Needles.—Immediately after use, needles should be thoroughly rinsed by forcing tap water through them. After preliminary flushing with water, stainless-steel bleeding needles are cleaned by quickly rinsing them with fuming nitric acid (diluted with equal parts of water) two or three times with the aid of a syringe. The needles are then immediately rinsed with several changes of water and finally with distilled water, alcohol, and ether. A fine oilstone is used for sharpening and pointing needles. Since smaller needles cannot be cleaned by means of acid, a stylet is used, and the needles are thoroughly flushed with water and rinsed in alcohol and ether.

Metal Parts.—Stainless-steel mesh filters and other metal parts are easily cleaned by boiling in 5 per cent sodium hydroxide solution for fifteen minutes, followed by boiling in 0.5 per cent acetic acid and thoroughly rinsing with distilled water.

† Five per cent technical sodium bichromate solution dissolved in concentrated sulfuric acid.

Berkefeld Filters.—Large Berkefeld candles are cleaned at the Serum Center by the following procedure:

1. Scrub surface vigorously with a fine brush within one hour after use or scrape surface lightly with the edge of a glass slide.
2. Filter through 2 liters of tap water.
3. Invert candle in a large test tube containing sufficient 0.85 per cent salt solution to cover filter and store at 5 C. for five to seven days.
4. Filter through 4 liters of 0.85 per cent salt solution.
5. Boil in 5 per cent sodium bicarbonate solution for one and one-half hours.
6. Boil twice in distilled water for one hour.
7. Filter through 2 liters of distilled water.
8. Dry in hot-air oven at 160 C. for six hours.

Pyrogen Test.—In order to reduce the incidence of reactions, routine pyrogen tests should be carried out with periodic samples of distilled water and the final washings in each batch of rubber tubing. (Full details of the technic are given in the U.S. Pharmacopeia XII, pages 606 to 607.) Briefly, this test consists of preparing a sterile sample of the test material in an isotonic solution of sodium chloride which is warmed to approximately 37 C. and injected intravenously into the marginal ear vein of at least 5 rabbits. Ten cubic centimeters of material per kilogram of rabbit is injected with a sterile and pyrogen-free syringe and needle. Rectal temperatures are taken fifteen minutes prior to inoculation and thereafter at hourly intervals until three recordings are made. The test is considered positive if 3 or more of the 5 animals show an individual rise in temperature of 0.6 C. (1 F.) or more above the normal established for each of these animals. If only 1 or 2 of the 5 rabbits show a positive response, the test must be repeated on a second group of 5 additional animals.

Sterilization.—Glassware is sterilized by dry heat at 180 C. for two hours. Syringes and apparatus employing rubber connections are sterilized in an autoclave by steam at 15 to 20 pounds pressure for thirty minutes in order to insure thorough penetration. The temperature must be at least 121.6 C. Glassware may also be sterilized in the autoclave and then dried by allowing steam to remain in the outer jacket with the steam cut off from the sterilizing chamber. Blood collecting sets and similar apparatus are double wrapped in heavy cloth before sterilization in order to remain sterile until used. Immediately after sterilization equipment should be labeled in order to prevent confusion with unsterile materials. The autoclave and hot-air

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LABORATORY ASPECTS OF THE PREPARATION AND BIOLOGIC CONTROL OF PLASMA

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PLASMA is the liquid constituent of blood which has been prevented from clotting by the addition of an anticoagulant, usually sodium citrate. Serum, on the other hand, is the liquid which separates from blood that has been permitted to clot spontaneously. Essentially, plasma is a sterile solution containing various salts, albumin, globulin, and fibrinogen.[1] Freshly prepared plasma contains no visible particles and is free of cellular elements, except for a variable number of blood platelets. A precipitate of fibrin usually develops when plasma stands, and it must be filtered before use. Serum can be used without preliminary filtration because fibrin precipitates do not occur. Moreover, serum contains no sodium citrate solution and is, therefore, cubic centimeter for cubic centimeter, more effective than plasma. According to Best and Solandt,[2] properly prepared plasma and serum are physiologically and therapeutically identical and may be used interchangeably as a blood substitute in the treatment of shock and hemorrhage.

The preparation of plasma or serum requires great care. The minimum requirements as set forth by the National Institute of Health should be scrupulously observed in order to prepare a sterile product free of reaction-producing substances. Plasma is easier to process than serum. For this reason, and because the preparation of serum is limited to specially trained personnel, this paper deals principally with plasma.

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From the Samuel Deutsch Serum Center of Michael Reese Hospital and Michael Reese Research Foundation, Chicago.

*Preparation of Equipment**

All items of equipment used in preparation must be chemically clean as well as sterile. Only pyrogen-free, freshly distilled water should be used for washing rubber parts and glassware used in the preparation of solutions for intravenous use. A known pyrogen-free sodium citrate should be used as the anticoagulant. Pyrogen (fever- and chill-producing) reactions are caused by the intravenous injection of solutions containing any of the following: (1) filterable thermostabile products of growth of certain strains of bacteria, (2) certain strains of dead bacteria, (3) traces of other foreign protein matter, and possibly (4) nonprotein particulate matter, such as powders from new rubber tubing.[3–6]

Rubber Parts.—New rubber stoppers are prepared by boiling in 4 per cent sodium hydroxide solution, immersion in boiling 0.5 per cent acetic acid solution, and rinsing with distilled water. Used rubber stoppers are scrubbed with soap and water and rinsed thoroughly with distilled water. Rubber tubing must be carefully cleaned because many pyrogenic reactions can be traced to inadequately cleaned tubing. Foreign protein matter, such as old blood clots, has often been incriminated. The following procedure is used

* I am indebted to Mr. John Moss for details on preparation of equipment at the Serum Center.



FIG. 1. Tubes of thioglycolate medium inoculated with plasma contrasting bacterial growth with various precipitates in the medium. Reading left to right: tube 1—surface growth and amorphous precipitate near bottom; tube 2—no growth, amorphous precipitate near bottom; tube 3—no growth, crystalline precipitate near bottom; tube 4—diffuse growth; tube 5—surface growth and amorphous precipitate near bottom; tube 6—diffuse growth with greatest concentration near bottom.

multiply, but somewhat more slowly in plasma that is kept at 5 C. After rather extensive studies, Mackay[12] concludes that disinfectants have only a limited value in controlling bacterial growth in stored serum. Smith, Czarnetsky, and Mudd[13] have shown that serum proteins rapidly neutralize the bactericidal effect of merthiolate and other mercurial preservatives. The possibility of using a combination of 1:20,000 merthiolate and 0.25 per cent phenol as a preservative[14,15] because this mixture will destroy the usual contaminants of plasma is not favored by the Board of Medical Control of Plasma for England.[7] They point out that toxic amounts of phenol would be given in large plasma transfusions (7.5 Gm. of phenol in 3 liters of plasma). At present the following preservatives and concentrations are recommended by the National Institute of Health: (1) for liquid or frozen plasma, a final concentration of 1.10,000 merthiolate or 1:15,000 phenyl mercuric borate, and (2) for dried plasma, a final concentration of 1 35,000 merthiolate or 1:50,000 phenyl mercuric borate.

After the addition of the preservative, the plasma pool may be filtered through a Berkefeld N filter for clarification and, as an added precaution, to eliminate chance contamination. When plasma is processed, Berkefeld filtration is not required nor is it usually employed because the presence of fibrin makes filtration a difficult procedure. The pooled plasma is next bottled through a closed system in sterile containers suitable for administration to the recipient in 300 cc. amounts by means of a buret. If the plasma has not been filtered prior to bottling, the lumen of the filling tube leading to the final container must be fitted with a filter adequate to remove

sterilizer should be equipped with a recording thermometer.

In operating an autoclave, it is extremely important to keep the sterilizing chamber free of air during the period when steam enters the chamber. This can be accomplished by keeping the drain valve slightly open. Failure to expel air results in a marked decrease in temperature although the pressure gage may indicate the desired reading.

Processing of Plasma

Plasma Processing Room.—Plasma should be prepared in dust-free rooms in order to reduce the incidence of bacterial contamination. As an additional precaution technicians should wear sterile gowns, caps, shoe coverings, and masks. Complete details of a well-equipped plasma processing room are given in the "Report of the Blood Transfusion Association Concerning the Project for Supplying Blood Plasma to England."[7]

The plasma processing rooms at the Serum Center are equipped with refrigerated air conditioning units and water sprinklers so that the rooms can be routinely showered down after each day's work. The success of these rooms in minimizing air contamination is reflected in the relatively low bacterial count of plates exposed twice daily for thirty minutes. The count usually varies from 0 to 4 colonies per plate. Our experience with several makes of commercial ultraviolet radiation units for reducing the bacterial count of air in the processing rooms has been disappointing. We feel that many airborne bacteria within particles of dust and mucus are protected from the action of ultraviolet rays, which have very limited powers of penetration. The use of propylene glycol and other germicidal aerosols for air sterilization in plasma processing rooms is a promising possibility that awaits further development.[8]

Collection of Blood.—Only healthy persons, certified by a qualified physician as being free from any disease transmissible by blood transfusion at the time of bleeding, may serve as donors. A specimen of blood is taken from the collecting tube at the time of bleeding to be tested for syphilis by an acceptable serologic test. Bloods showing a 3 or 4 plus reaction are discarded. Those showing doubtful results (plus-minus, 1 or 2 plus reaction) are checked by another method, preferably a complement fixation test. If the same degree of reaction, or less, is obtained, the blood may be processed. If, however, the retest method is a complement fixation test, any blood giving a 2 plus reaction is discarded.

The technic of bleeding is as follows:

1. Adjust tourniquet or blood pressure cuff.
2. Prepare skin with iodine and alcohol.
3. Produce local anesthesia over vein with 2 per cent novocain.
4. After venipuncture, apply slight suction and withdraw blood into an individual sterile centrifuge bottle already containing 50 cc. of a sterile 4 per cent solution of sodium citrate in 0.85 per cent sodium chloride for each 500 cc. of whole blood.
5. Within one hour after bleeding, place the citrated blood in a refrigerator kept at 2 to 5 C. Freezing must be avoided, or laking of the erythrocytes will occur.

Preparation of Plasma.—Usually within twenty-four hours after bleeding (not longer than seventy-two hours), the citrated blood is removed from the refrigerator and centrifuged at 2,000 r.p.m. for twenty minutes in order to produce thorough packing of the cells. The supernatant cell-free plasma is then withdrawn into a sterile individual bottle through a closed system. A closed system is defined as one in which the air of the room is not allowed to come in contact with the plasma, except as air for replacement, and this air must pass through an antibacterial air filter. All transfers of plasma from one container to another are made through a closed system in a dust-free room. At the Serum Center each individual plasma is tested bacteriologically as well as serologically before pooling. If the tests are negative, eight or more individual plasmas are pooled in a large container in order to suppress the iso-agglutinins.[9] Each individual plasma is poured into the pooling bottle through a large filtering funnel lined with four to six layers of finely meshed gauze in order to remove as much fibrin as possible. The completed pool should not contain more than 25 mg. of hemoglobin per 100 cc. A sufficient amount of 50 per cent dextrose solution to give a final concentration of 5 per cent dextrose is then added to the plasma pool intended to be dispensed in the liquid or frozen state without subsequent drying. Dextrose serves as a stabilizing agent and inhibits fibrin formation.[10] No dextrose is added to plasma that is intended for drying.

Before adding a preservative to the pool, a sample is withdrawn for a sterility test. The preservative is then added to insure additional safety by prohibiting the growth of chance contaminants. Unfortunately, no suitable preservative is known which will insure the sterility of plasma against all types of contaminants found in biologic products. Some of the common contaminants usually encountered in plasma include diphtheroids, staphylococci, nonhemolytic streptococci, hay bacilli, and Pseudomonas pyocyanea.[11] All of these organisms grow readily in plasma stored at room temperature, and many

tamination, then a completely filled final container is selected at random and cultured. The plasma of the pool under test may be released for use if the random final container is sterile; otherwise the entire pool is discarded. The sterility test on the final containers of frozen plasma is carried out in the same manner after thawing the samples in a water bath at 37 C. In the case of dried plasma, a sample of 10 cc. instead of 20 cc. is withdrawn from the dried sample reconstituted to its orginal volume by the addition of sterile distilled water for culturing.

Safety Tests.—Each pool of plasma is tested for toxicity by inoculating the final product intraperitoneally (0.5 cc.) into a mouse and subcutaneously (1.5 cc.) into a guinea pig. Daily temperature and weight records are kept on the guinea pig, and the animals are observed for one week. If either animal dies, additional animals are inoculated and if these survive and show no toxic symptoms the first death is disregarded.

Dating and Storage of Plasma.—Liquid plasma should be stored at a fairly constant room temperature within the range of 15 to 30 C., and the expiration date should not exceed one year from the date of manufacture. Liquid plasma should not be stored in the refrigerator because lower temperatures increase precipitation. Frozen plasma is stored continuously at −18 C., or lower, and its expiration date should not exceed three years from the date of manufacture. Frozen plasma is thawed in a constant-temperature water bath at 37 C. Dried plasma is preferably stored in a cool place and expires five years from the date of manufacture.

Records.—The keeping of accurate records is an important part of the successful preparation of plasma. Permanent records are kept of the name, sex, age, address, medical history, blood group, etc., of each donor comprising the pool. Each pool is given a lot number, and permanent records are made of the date of preparation and the results of sterility and animal safety tests.

Conclusions

The preparation and biologic control of plasma requires great care. It is recommended that the rules of the National Institute of Health for the preparation of normal human plasma be observed in order to prepare a safe, sterile product free of pyrogenic substances. All items of equipment must be chemically clean as well as sterile. A rigid aseptic technic should be followed in collecting the blood, and a closed system in a dust-free room should be employed during all stages of the processing of plasma. Sterility tests should be made on the individual plasma and on random final containers after pooling. An animal safety test should be made of each pool and careful permanent records kept of every aspect of preparation.

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PRINCIPLES AND METHODS OF DESICCATION OF PLASMA

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THE practice of drying materials from the frozen state is a long-established laboratory procedure. D'Arsonval's discovery of a method to liquefy air made it possible to create a very high vacuum in a system containing water. As early as 1906, d'Arsonval and Bordas described such vacuum desiccation and the drying of frozen organic materials. The apparatus consisted of two connected chambers, one serving as a container for the frozen material, the other functioning as a condenser for the water vapor and cooled by liquid air or carbon dioxide snow-acetone mixture (Diagram I). This method has been a commonly known laboratory procedure, used whenever the occasion required the drying of material out of the frozen state. The entire system was thoroughly evacuated, and the vapor

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all coarse particles that would be dangerous if administered intravenously. As an additional safety measure, the plasma must be filtered again just before administration. When processing plasma to the liquid or frozen state, the final containers must be filled within twenty-four hours after completion of the sterility tests on the individual containers or on the pool (see next section). Plasma which is to be processed to the frozen state is placed in a freezing compartment immediately after the container is filled and brought to the frozen state within six hours. For processing plasma to the dried state, the final containers must be shell frozen within seventy-two hours of bleeding.

Sterility Tests.—A fluid thioglycolate medium such as the Linden or Brewer formula[16] is recommended by the National Institute of Health for making sterility tests on plasma and other biologics. Thioglycolate medium has the great advantage of supporting the growth of anaerobic as well as aerobic bacteria. This medium maintains anaerobic conditions without the use of seals and does not require boiling immediately before inoculation. Moreover, the thioglycolate present in the medium combines with and neutralizes merthiolate and most other mercurials used as preservatives. Repeated tests have shown that 7.5 cc. of thioglycolate medium is ample to neutralize the bacteriostatic effect of 1 cc. of plasma containing 1:10,000 merthiolate or phenyl mercuric borate.

Like others, thioglycolate medium has its disadvantages. In reading sterility tests one often sees various amorphous and crystalline precipitates which are sometimes very similar to bacterial growth (Fig. 1). Most of the amorphous precipitates are probably caused by the settling out of small amounts of agar which is an essential ingredient for maintaining anaerobiosis in the medium. We have found that these precipitates can be avoided to some extent if the thioglycolate medium is stored in the incubator immediately after autoclaving. Thioglycolate medium should not be stored in a refrigerator because the duration of anaerobiosis is decreased.[16] A lower temperature increases the solubility of atmospheric gases in the medium. Another disadvantage is that certain organisms tend to grow in discrete colonies, especially if fibrin veils are present, and growth does not spread throughout the medium. Except for these disadvantages, fluid thioglycolate has been very satisfactory in our hands for culturing plasma and other biologics. We tube 15 cc. of medium in test tubes 6 inches by $^5/_8$ inch and autoclave for twenty minutes at 121.6 C. Each test tube is covered with a close-fitting glass cap, and 10 tubes are kept in a rack. Thioglycolate medium is commercially available in the dehydrated form and may be purchased from the Difco or Baltimore Biological Laboratories.

The regulations of the National Institute of Health require tests for sterility on plasma from (*a*) each individual bleeding or from a sample taken from the plasma pool prior to the addition of a preservative, and (*b*) on a specified number of final containers. For sterility tests on individual bleedings of plasma processed to the liquid or frozen state, a 5 cc. sample is withdrawn from each individual plasma and cultured at 37 C. for seven days in one or more portions of thioglycolate medium. We add 2 cc. of plasma to each culture tube containing 15 cc. of medium. If growth occurs, the plasma is discarded, or it may be retested and discarded if contamination appears in the retest. When plasma is to be processed to the dried state, a test sample of only 2 cc. is withdrawn from each individual plasma for the sterility test. A forty-eight-hour reading of the sterility test is required because plasma intended for drying is pooled at that time and brought to the frozen state within seventy-two hours of bleeding. For several reasons, we prefer to culture the individual plasmas before pooling. First, the chances of recovering organisms from low-grade contaminations are increased, since the dilution factor in pooling is eliminated. Second, one contaminated individual plasma can result in the loss of an entire pool, and, finally, a large number of individual plasmas can be pooled with a greater degree of safety.

If the sterility test on the pool prior to the addition of the preservative is elected instead of the individual bleeding, two separate samples of 20 cc. (only 5 cc. if the plasma is intended for drying) must be drawn. One of the samples is planted in one or more portions of thioglycolate medium. If contaminated, the test is repeated with the second sample. The pool is discarded if growth occurs in the retest.

Before making the sterility test on the final containers, liquid plasma must be stored at room temperature (60 to 80 F.) for at least two weeks from the time of filling the containers with the plasma pool. For each pool of 25 final containers the first 25 cc. flowing from the plasma reservoir and the last 25 cc. are drawn into a single random final container. If the pool is larger, an additional sample is withdrawn for each 25 final containers just before and immediately after each group of 25 final containers. After storage for two weeks, the sample is allowed to come in contact with the entire inside surface of the container, and 20 cc. is withdrawn for the sterility test. Should growth occur in any tube planted, the sterility test is repeated with the unused portion of the sample. If the retest also shows con-

with a gage which records the total pressure in the system—i.e., both air and water vapor pressure.

The commonly used McLeod gage measures only air pressure, and therefore it is necessary to use a gage of the heated thermocouple type or a heated resistance wire which measures the water vapor pressure as well.

Ice will sublimate in a vacuum of 1 mm. Hg at −17 C., at 500 microns (1/2 of 1 mm. Hg) at −24 C., 250 microns at −31 C., and 100 microns at −40 C. Any good vacuum pump will create and maintain a high air vacuum, 50 to 100 Hg microns being sufficient. The drying of frozen materials does not present a static system, but a dynamic one. The sublimation constantly produces water vapor, the amount depending on the rate at which heat of sublimation is introduced. This water vapor must be rapidly removed from the system; otherwise the vacuum will spoil and the plasma will melt. The movement of the water vapor from the bottle to the condenser is only by diffusion, which is naturally a slow process. Therefore, it is imperative to avoid any hindrance to this vapor flow.

In order to insure sterility, it is required to dry plasma in its final container, a bottle; the bottle neck of the container constitutes a restriction to vapor flow and causes an unavoidable but serious deviation from the ideal condition. Since plasma must be dried in a bottle, the neck should be as large as possible because the flow through a bottle neck is directly proportional to the third power of the diameter. All connections between drying chamber and condenser should be as short as possible and of large diameter. A combined drying and condensing chamber is a very efficient system.

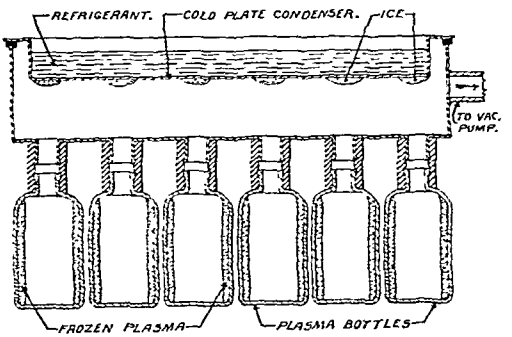
One of the attempts to produce large amounts of dried plasma was by a direct and simple enlargement of the original laboratory model, which is illustrated schematically in Diagram II. This shows a combination of drying and condensing chamber, eliminating all restrictions to vapor flow except the one of the bottle neck, and bringing the condensing surface in close proximity to the source of vapor production. Thus a good vacuum can be easily maintained. In principle this is an effective and fairly practical method, but it is rather laborious and relatively costly in maintenance.

Modifications of the apparatus shown in Diagram II are easily constructed, relatively inexpensive, and are in use.

Condenser

The efficiency of the condenser in reconverting the water vapor to ice is an important factor in maintaining a good vacuum in the system. From the preceding discussion on the importance of a maintained vacuum for proper desiccation of plasma, the condenser for moisture removal occupies a prominent position in successful operation.

DIAGRAM − II.
SCHEMATIC PRODUCTION MODEL
ICE SUBLIMATION IN VACUO.

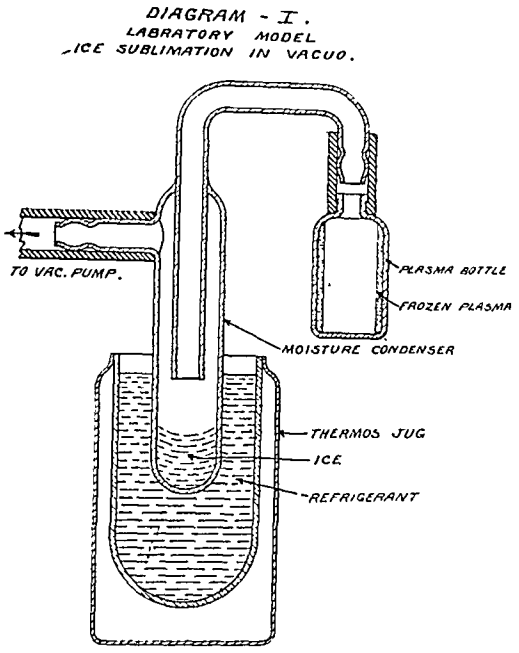


Oil pumps have been used for the dual function of producing an air vacuum and removing the water vapor by condensing it in the oil. The oil and water are then separated by a centrifugal arrangement. This attempt has not proved successful for large-scale production because the process is slow, a high vacuum can never be obtained, and the drying takes place at temperatures dangerously close to the melting point of the plasma.

Another method which relies upon the vacuum to remove both air and water vapor simultaneously is the steam ejector. The steam ejector is similar in principle to the common laboratory water aspirator. High-pressure steam (between 90 and 150 pounds) is forced through a very small nozzle, and the very rapidly expanding steam exhausts the air and water vapor, maintaining a good vacuum. By using multiple ejectors a very high vacuum can be obtained. This system is practical if high-pressure steam is available and if sufficient water can be used for the condensation of the steam. A large drying chamber can be employed and several hundred bottles of frozen plasma can be dried simultaneously.

This equipment is now in common use and is highly successful.

Cold surface condensers are much more effective provided the temperature is sufficiently low and the surface sufficiently large. It is not essential that the temperature of the condenser be as low as −70 C., for −30 to −50 C. is adequate if the surface is large and if this temperature is



of the frozen material slowly sublimed into the condenser.

There is no good terminology applied to this technic, and we propose the use of the term "drying by ice sublimation" to express accurately the fact that the material is converted from the frozen state directly to the dry, solid state, the water being converted from ice to steam without an intermediary liquid phase.

Just before the outbreak of World War II, investigators found human plasma and serum to be good substitutes for blood, particularly in shock and burns. It was obvious that plasma or serum dried by ice sublimation would offer great advantages in supplying large quantities of plasma to the armed forces. There are at least three definite advantages for the dried product: (1) it can be stored regardless of extreme climatic heat or cold to which it might be exposed in any part of the world, (2) the great stability of organic materials dried by ice sublimation permits at least five years' storage of plasma, and (3) the reduced shipping weight and thus decreased likelihood of breakage are added values in wartime.

These considerations prompted the decision to make available large amounts of dried plasma to the fighting forces, and the biologic industry was confronted with the difficult task of converting a laboratory process into large-scale production with little time for experimentation. It is, therefore, not surprising that the first production machines were constructed in such a manner that they violated some of the basic physical principles that govern drying by ice sublimation. These early machines required from one hundred to one hundred and twenty hours to dry plasma, and even then the moisture content of the dried product was relatively high. Furthermore, there was frequent melting in minute spots during the drying process, and the resultant drying from the liquid state produced a hard, granular product which redissolved slowly and with great difficulty. It should be stated here that in order to have maximum stability, the final water content of the dried powder should be less than 0.5 per cent.

A thorough appreciation of the fundamental principles is necessary to dry plasma properly by ice sublimation. Under ideal conditions, if the film of frozen material is infinitely thin, the surface infinitely large and unrestricted, the temperature constant and the vacuum perfect, the drying would be instantaneous. The farther one departs from these ideal conditions, however, the slower the drying process will be.

Shell Freezing

In order to provide the largest possible surface and the thinnest possible film in the bottle, the liquid plasma is frozen as a shell against the glass wall by rotating the bottle in a cold bath on its side.

The frozen shell should be a true cylinder. This can be accomplished by rotating the bottle on its side partly submerged in a refrigerant, preferably at 12 to 20 r. p. m., or spinning the bottle at a speed sufficiently high so that centrifugal force will throw the liquid against the walls of the bottle in the shape of a cylinder, and either submerging the rotating bottle in a cold bath or exposing it to very cold circulating air. The temperature of the freezing bath should be so low that very rapid or so-called "snap freezing" will occur. Otherwise the components of the plasma will separate by fractional crystallization, and the drying of plasma will be more difficult. The freezing bath should be maintained at −65 C., or lower, during the entire shell freezing process. Freezing at this temperature produces a very uniform and smooth cylinder of frozen plasma, while at higher temperatures the shell might be irregular and lumpy because of focal ice crystallization.

Vacuum

The degree of vacuum in the drying system is a very important factor, for it controls the temperature at which the sublimation will occur, just as the atmospheric pressure controls the boiling point of water. It should be measured

THE CLINICAL APPLICATION OF PLASMA

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UNDER the impetus of this war, the field of plasma therapy has undergone a remarkably rapid expansion and application. This is best illustrated by recalling that the first preliminary reports on the use of human serum or plasma were published about five years ago.[1] In these last five years an astonishingly voluminous literature has appeared on this subject. Our prediction made in 1939[2] that "it [plasma] can be processed in ample quantities from the blood of noncombatants in civilian centers far removed from the war front, prepared in proper containers ready for use, and distributed directly to the front" has been borne out by the Red Cross Blood Plasma Program, whereby several million units are being made available to the fighting fronts all over the world from blood collected from civilians in this country.

There are certain facts that must be kept in mind in order to evaluate the position of plasma in therapy. Plasma in the body is the noncellular fraction of blood, consisting principally of water, 0.85 per cent salt and about 7 per cent protein made up chiefly of albumin and globulin. In vitro plasma also contains the anticoagulant employed when the blood is removed, usually sodium citrate solution. Serum is the liquid fraction expressed when blood coagulates and is undiluted true plasma from which most of the clotting constituents have been removed. For practical purposes serum and plasma are practically the same and produce the same result. They can be prepared in three different forms—liquid, frozen, and dried.

Circumstances dictate which form may be preferable. The liquid plasma, after preparation, should be stored at room temperature to prevent the formation of fibrin strands and precipitates. Liquid plasma should not be kept more than one year. It requires the least handling and is most readily available in emergencies. The liquid plasma, if frozen and stored at −20 C. or lower, is believed to remain stable for three years. It requires thawing at 37 C. before administration, with some attendant time loss. Properly dried plasma is believed to remain stable for at least five years, is not subject to deterioration by climatic extremes, and therefore does not require special equipment or special provision for storage. Restoration with distilled water and return to the liquid state before infusion takes from five to ten minutes if the plasma has been properly desiccated. There is one practical advantage of frozen or dried plasma. During processing, chance contamination may occur which may not appear on testing. Bacterial growth will be inhibited in the frozen or dried state, a distinct safety factor that does not exist with liquid plasma.

For ordinary civilian and hospital use, liquid plasma prepared by observing all the safeguards set up by the National Institute of Health should prove completely satisfactory because liquid plasma can easily be maintained at room temperature, requires no special drying or low temperature equipment, and is utilized within the specified one year. For use under difficult conditions in an indefinite period of time, as for war purposes, the dried form is the one of choice, and fully worth the additional effort required in desiccation.

A brief survey of the principal uses of blood transfusion will clarify the application and value of plasma. The succeeding discussion will be restricted to plasma. Consideration of other therapeutic measures is intentionally omitted with the understanding that sound basic surgical and medical measures and other adjuvant therapy is equally or more important in successful treatment.

Uses of Blood Transfusion

1. Anemia.—The deficiency is principally erythrocytes and only whole blood transfusion is indicated. Plasma is ineffective. Erythrocytes suspended in saline are being increasingly used with favorable results.[3]

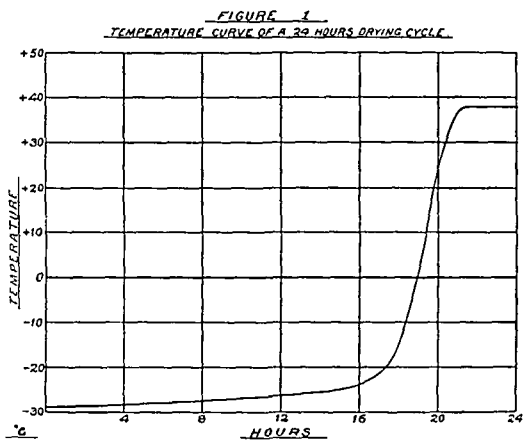
2. Simple Hemorrhage.—In the absence of shock and ample time for treatment, whole blood is the preferred agent.

3. Extensive Hemorrhage with Shock.—Whole blood is the only complete therapeutic agent. Since shock may progress rapidly and since delay involved in blood transfusion must therefore be avoided, plasma finds a place as interim emergency therapy to correct the oligemia and combat the shock until whole blood can be administered to overcome the anemia resulting from the blood loss.

4. Traumatic and Surgical Shock.—One of the predominant features characterizing shock is deficient circulating fluid, owing to plasma loss. The sequellae of such oligemia are hypotension,

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maintained regardless of the amount of water vapor which must be condensed. Temperatures of −30 to −40 C. are actually preferable because mechanical refrigeration is more efficient and simpler, and water vapor pressure at these temperatures is low enough to permit a good vacuum.

It is always essential that the refrigeration should have ample capacity to remove rapidly the heat of condensation and crystallization.

Heat

Heat of sublimation must be supplied to the frozen material. In the apparatus as shown in Diagrams I and II, this sublimation heat is supplied by the surrounding air. Ice will condense on the bottles from the moisture in the air, and the heat thus supplied is utilized to sublimate ice out of the frozen plasma. With an apparatus of this kind, therefore, it is advisable to keep the room warm (around 50 C.) and the relative humidity high. Circulating the air will facilitate the heat exchange. The heat transfer to the frozen plasma through the glass of the bottle is slow, but no air currents can be directed against the bottle because the plasma adjacent to the wall will easily melt. Heat might be supplied by other convenient means, such as submerging the bottles in a bath kept at the necessary temperature during the different stages of the drying process.

The drying process of frozen plasma might be classified, figuratively speaking, as falling into three stages:

1. The *principle drying period*, during which about 90 per cent of the water is removed. The temperature of the plasma should not be permitted to rise above −15 C. If the temperature remains constant during this period, it signifies that the water vapor is condensed as rapidly as it is produced by sublimation.

2. The *intermediate drying period*, in which an additional 9 per cent of water is removed. During this period the temperature should be allowed to rise slowly and gradually to 35 to 40 C. (describing an S-shaped curve).

3. The *terminal drying period*, in which the last fraction of 1 per cent of moisture is removed, by maintaining the dry plasma for from three to four hours at temperatures between +45 and +55 C. The last residual moisture appears to be held more firmly.

A characteristic and illustrative temperature record is presented in Fig. 1.

The bottles containing the dried plasma should be sealed in vacuum or in an atmosphere of dry nitrogen.

The temperature of the drying plasma can be measured in many different ways, but dependable average readings are secured from a thermocouple suspended in the middle of the bottle and exposed to the escaping vapor. During the principal drying period the amount of heat which can be introduced is limited only by the fact that the layer of plasma adjacent to the wall might melt. In the intermediate period, sublimation heat can be supplied only slowly because plasma containing a high percentage of moisture is easily denatured if the temperature rises too fast. Such denatured plasma may be quite toxic. There should be a period of from two to four hours in which the plasma is brought from −15 C. to +20 C.

Our experiments have shown that completely dried plasma containing less than 0.5 per cent moisture can be heated with safety to as high a temperature as +80 C. In our studies, plasma subjected to 80 C. for two hours after complete drying, was unchanged, for it redissolved easily and the reconstituted plasma was nontoxic when injected into experimental animals.

It is a truly remarkable achievement that the American biologic industry has taken a laboratory process, which is complicated and meticulous, and has rapidly developed production methods so efficient that they are now supplying several million units of plasma per year to the armed forces.

There are many other materials to which drying by ice sublimation can be applied. Many biologics are unstable in liquid form, can be dried only by ice sublimation without loss of potency, and are quite stable in the dried state.

This field is a relatively new one, and many developments may be expected in the future.

1,000 cc. are required, and in severe conditions and grave shock, 3,000 to 5,000 cc. may be necessary in the first twenty-four hours after injury.

It is important to realize that continued plasma therapy is often necessary to maintain the blood volume at normal levels because of continued plasma loss for one reason or another. The patient's condition, pulse, blood pressure, and the laboratory determinations are the best guide for plasma requirements. The patient must, therefore, be closely observed for at least seventy-two hours after onset for signs of recurrent shock.

These essentials of massive and repeated plasma therapy are particularly applicable to severe burns, where the plasma loss may be tremendous. In the past it was felt that the extensive plasma loss in burns required equally large plasma replacement, and various formulas[13,14,15] of estimating the dose were proposed. Some of these formulas were complicated, others inaccurate and usually too low, approximately 500 cc. for 10 per cent body burn. Both animal experiments[16,17,18] and clinical studies[13,14,19] demonstrate that plasma loss is usually in excess of the amount. In our own studies [19,20] in patients, based principally on the plasma requirements to re-establish and maintain normal conditions and values, we found it necessary to give larger amounts. Our course of plasma therapy consists of the following, based upon 10 per cent body burn: immediate infusion of 600 cc.; additional 300 cc. during the first twenty-four hours; a further 300 cc. in the next forty-eight hours. Continued plasma therapy may be required. The foregoing is only a working formula and is varied (usually increased), particularly in severe and extensive burns.

In considering the value of plasma as a restorative agent and concentrating on its protein content, one should not become oblivious to its water component. When plasma is lost in shock, water as well as protein is lost. If body reserves permit, water can very rapidly be drawn into the circulation. If the individual, however, is dehydrated, and fluid stores depleted, it is equally important to replace water as well as to restore proteins in order that the already dehydrated tissues be spared injury from further dehydration.

Studies in our laboratory with various macromolecular therapeutic agents clearly demonstrate that in shock, under any condition, the total fluid volume of the infused agent is of great importance.[21,22,23,24,25] Concentrated solutions are completely effective only if given with sufficient fluid. This is most strikingly demonstrated in animals in a dehydrated state. In the presence of severe dehydration, four times concentrated protein solutions administered in small volume of fluid are followed by a response which is much less prompt and rarely as complete as is seen after administration of protein equivalent iso-osmotic infusions. Frequently, such concentrated solutions appear to impose so severe a strain on the circulatory mechanism that the injection causes sudden death. In the controversy on the relative merits of concentrated and iso-osmotic protein solutions, the attention has been focused upon the proteins. Both proteins and total fluid volume are important. We are now studying the relative effect of volume-equivalent concentrated and iso-osmotic solutions. We have reason to believe that two or three times concentrated protein solutions given with sufficient fluid volume will prove the most effective form of therapy.

Summary

In conclusion, we may summarize by stating that:

1. Human serum and plasma are physiologically equal and physiologically active in combating conditions characterized by a depletion of plasma volume.

2. Liquid, frozen, or dried plasma have certain individual advantages based purely on the circumstances under which they will be used.

3. Plasma is a biologic and must be prepared with scrupulous care and proper safeguards and tests for safety.

4. The dosage required is usually large and should be adequate for restoration.

5. Repeated plasma injections may be required to maintain a normal plasma volume.

6. Fluid reserves and total fluid volume replacement are of great importance.

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TABLE 1.—A Practical Comparison of the Different Forms of Plasma

	Liquid Plasma	Frozen Plasma	Dried Plasma
Sources	Fresh blood Outdated bank blood	Fresh blood Outdated bank blood	Fresh blood Outdated bank blood
Derived from	Citrated blood	Liquid plasma	Liquid plasma
Percentage of protein (final)	5½–2% (technics vary)	5½% usually	5½% usually
Dilution	20%–400% (technics vary)	20% usually	20% usually
Fibrinogen	Part or all present	Usually all present	Usually all present
Preparation requires	Skilled care (a crude product more readily prepared)	Skilled care (a crude product more readily prepared)	Skilled care
Special preparation	None	The liquid plasma is frozen in a low-temperature refrigerator	The liquid plasma is dried with special machines
Storage	Refrigerator or room*	Special low-temperature refrigerator (−4 F.)	Room
Stability	Fibrin deposits in refrigerator	Good	Good
Expiration date	1 year	3 years	5 years
Special handling for administration	None	Thaw at 37 C.	Add distilled water and dissolve
Time required	.....	30 minutes	5 minutes or longer
Administration	For all forms, the intravenous outfit must be clean, sterile, and pyrogen-free		
Type of filter needed	Stainless steel mesh	Glass tape or stainless steel mesh	Glass tape or stainless steel mesh

* Liquid plasma is best stored at room temperature (60 to 85 F.) to minimize fibrinogen precipitation, although at these temperatures the antibodies are lost.

anoxemia, hemoconcentration, tissue anoxia, acidosis, and eventually death. Blood transfusion is effective. Plasma is effective. Any suitable macromolecular solution will restore and maintain the circulating plasma volume. Plasma is the most natural solution of this kind. Many others (pectin, gelatin) are still experimental.[4]

5. *Burns.*—This is one condition in which plasma loss is an outstanding feature and in which much plasma loss is a major cause of early shock and death. Plasma replacement is absolutely essential.

6. *Preoperative Therapy.*—It is well established that an important controlling factor in resistance to shock is blood protein and fluid reserves. Preoperative blood transfusions occupy an accepted place in any surgical routine. Plasma may well be substituted and will prove an invaluable preoperative measure to increase reserve stores of protein and fluid, and thereby decrease the operative risk. Blood transfusion is probably superior for this purpose, but difficulty of various kinds may attend the use of blood, and plasma can be readily available under any circumstance.

7. *Miscellaneous.*—Hypoproteinemia associated with malnutrition, nephrosis, or postoperative cachexia can be benefited by plasma therapy.

Blood transfusion has long been employed, empirically, for treatment of acute infections. When such infections are accompanied by secondary anemia, the erythrocytes are of value. Otherwise it is the proteins and particularly the antibodies in the adult serum or plasma which are beneficial. It is well known that adult serum, particularly from urban dwellers, contains antibodies against a variety of infections of known or unknown etiology.[5,6,7,8,9,10,11,12] Although this subject is at present largely unexplored, it is not impractical to consider the administration of pooled adult plasma in the treatment of common acute infections for which no specific therapy exists. This does not mean that indiscriminate treatment is advisable—quite the contrary. Until adequate studies have been made, plasma should be used circumspectly and critically for acute infections.

Dosage

This aspect of plasma therapy must be given the gravest consideration, because of a general misconception of what constitutes a proper dose. The common unit of plasma is 250 cc. or 300 cc., because this is the amount secured from a pint of blood, the standard amount withdrawn from a donor at venesection. Obviously this does not establish the proper unit for therapy. The dose depends upon the condition and the severity of the condition. In general, the dose to be administered is established by the quantity of blood or plasma that has been lost. This may be estimated by blood volume, erythrocyte, hemoglobin, and hematocrit determinations. In actual practice the principle guide to dosage is the clinical response of the patient. In severe or critical conditions, plasma should be given promptly, rapidly, and repeatedly until all evidence of shock or of oligemia has been overcome. Inadequate plasma therapy is wasted plasma. The response of the patient to treatment depends not only on the extent of injury but also on the length of time that shock has existed before therapy was instituted. The earlier treatment is instituted, the more rapid the response. If a condition is serious enough to require plasma, the absolute minimum to produce a response is 500 cc. More commonly

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Fibrinogen	Part or all present	Usually all present	Usually all present
Preparation requires	Skilled care (a crude product more readily prepared)	Skilled care (a crude product more readily prepared)	Skilled care
Special preparation	None	The liquid plasma is frozen in a low-temperature refrigerator	The liquid plasma is dried with special machines
Storage	Refrigerator or room*	Special low-temperature refrigerator (−4 F.)	Room
Stability	Fibrin deposits in refrigerator	Good	Good
Expiration date	1 year	3 years	5 years
Special handling for administration	None	Thaw at 37 C.	Add distilled water and dissolve
Time required	.....	30 minutes	5 minutes or longer
Administration	For all forms, the intravenous outfit must be clean, sterile, and pyrogen-free		
Type of filter needed	Stainless steel mesh	Glass tape or stainless steel mesh	Glass tape or stainless steel mesh

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BILATERAL BLINDNESS DUE TO LESIONS IN BOTH OCCIPITAL LOBES

Report of Six Cases, Four with Necropsy

HENRY ALSOP RILEY, M.D., New York City,* JOSEPH C. YASKIN, M.D., M. E. RIGGS, M.D., and A. S. TORNEY, M.D., Philadelphia

THE localization of cerebral lesions is usually relatively easy if evident disturbances of unilateral cerebral functions can be demonstrated. This is true not only for destructive but also for irritative lesions. If a group of symptoms that are dependent upon a single pathologic focus is present, the diagnosis can usually be made by a careful consideration of the train of symptoms and a proper evaluation of the evidence elicited by a thorough examination of the patient, amplified by adequate laboratory procedures. Multiple foci of involvement, either inflammatory, vascular, degenerative, or neoplastic in character, greatly increase the difficulty in localization. Since it is more common to find single rather than multiple lesions, the tendency is to try constantly to explain the symptomatic evidence on the basis of a single lesion and only the presence of irreconcilable facts will justify the conclusion that multiple foci are producing the various indications of disturbed cerebral function. It is usually much more difficult to explain a number of symptoms on the basis of a single lesion; making the diagnosis of multiple lesions exposes the physician to the charge of diagnostic laziness. As a result, the diagnostician endeavors to unravel the symptomatic picture on the basis of a single lesion, ascribing evidences incompatible with the presence of a single lesion to diaschisis, displacement, or distortion. Only when one is driven to the conclusion that the underlying pathologic cause is capable of producing symptoms indicative of multiple involvement is the guess hazarded that a multiple cause is responsible for nonconcordant evidence. Inflammatory and metastatic pathologic processes often produce the picture of widespread multiple involvements. A single progressively expanding lesion arising in or near the midline frequently results in symptoms indicative of bilateral involvement of adjacent structures. The march of events clearly indicates the successive involvement of one function after another and the general symptoms often make perfectly clear the character of the pathologic process. Vascular accidents that occur serially frequently result in multiple lesions, but it is difficult to remember that symmetric simultaneous involvement of bilateral structures may be due to vascular disease.

Disturbances of vision are frequently of great value in the differential diagnosis of cerebral lesions. Characteristic types of visual loss are often of great assistance in making a localizing diagnosis. The pathway of the visual fibers from the retina to the calcarine cortex is definitely established, and only minutiae in regard to the course of the fibers are still under discussion. A knowledge of the anatomic relations of the various parts of the visual pathway is absolutely essential in the determination of the location of any lesion that interferes with the visual function.

Satisfactory vision depends upon the maintenance in a reasonably normal condition of the structures subserving the visual function. This includes the cornea, lens, media, retina, choroid, and the vessels of the retina before one even begins to consider the neural pathways and their complicated course. The transmissive and receptive apparatus must be in satisfactory functioning condition before one can even consider the neural constituents of the visual pathway in coming to any conclusion concerning the locus of factors that interfere with vision. Disturbances in the cornea, the various media, and the retina are frequent causes for bilateral diminution or loss of vision. The diagnosis of such conditions depends upon careful ophthalmoscopic examination. As soon as one passes beyond the parts of the visual apparatus which can be seen and objectively examined, one is in the realm of deduction and theoretic differentiation. It is under these circumstances that a knowledge of the rather intricate course of the visual pathway is indispensable to correct neurologic diagnosis.

Each eye presents a field of vision divisible into a number of parts—the temporal, nasal, upper, and lower fields of vision and macular vision. The mechanics of the media cause the portions of the retina corresponding to the various subdivisions of the visual field to be reversed. The upper and lower visual fields are served by the inferior and superior portions of the retina, respectively, while the temporal and nasal visual fields are served by the nasal and temporal portions of the retina, respectively. The macular field is the region of most acute visual

* From the Neurological Institute of New York.

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24. Weston, R. E., Janota, M., Necheles, H., and Levinson, S. O.: Studies on the Therapy of Hemorrhagic Shock: III. Fluid Cell and Protein Shifts in Hemorrhagic Shock and After Infusion with Iso-Osmotic and Concentrated Protein Solutions. In Preparation.
25. Janota, M., Necheles, H., Weston, R. W., Weissman, V., and Levinson, S. O.: Gelatin Infusion in Hemorrhagic Shock. In Press.

DOCTORS AND NURSES IN CHINA GROW PLANTS FOR NEEDED DRUGS

Doctors and nurses in China's vast northwest territory, surrounded on three sides by Japanese armies, have been forced by necessity to become farmers.

Because of a crucial shortage of drugs such as belladonna, digitalis, codeine, and morphine, Chinese physicians and surgeons looking after ill and wounded guerrilla soldiers are now attempting to cultivate plants producing the drugs. China Aid Council, a participating agency of United China Relief, announces that Mme. Sun Yat-sen, who sponsors medical aid to guerrilla fighters and their children in the northwest, has cabled an urgent appeal for information on the cultivation of the purple foxglove, whose leaves provide digitalis, and on the cultivation of the deadly nightshade plant, whose leaves produce belladonna.

Mme. Sun, who is the widow of the founder of the Chinese Republic, writes that codeine and morphine, so necessary on the battlefront, are now being extracted in small quantities from opium.

Blockaded on three sides by Japanese armies, this northwest area had not received outside medical aid for two years until recently, when several truckloads of medical supplies were sent through from Free China. In the past five and a half years, medical treatment of the thousands of Chinese guerrilla soldiers was made possible almost entirely by drugs and medicines captured from the Japanese or smuggled out from Peiping, and by the small quantities of drugs and serums manufactured in the local drug factory.

Mme. Sun writes that thousands of guerrilla soldiers have died, and many more have suffered unnecessarily for want of medicines in the northwest region, where fighting has been constant since Japan started her invasion in 1937. The death last December of Dr. Kotnis, a young doctor from India, director of the International Peace Hospital in Wutaishan, is said to have resulted from inadequate medical treatment due to drug shortage.

His predecessor, the Canadian, Dr. Norman Bethune, founder of the International Peace Hospitals, died in 1939 as a result of lack of drugs needed to treat an infection.

A drug factory and serum institute, aided by funds sent by China Aid Council of United China Relief, are now producing medicines made from local herbs and indigenous materials. Mme. Sun also writes that the low grade vaseline obtained from local oil fields is being improved upon by Chinese research chemists working in the drug factory.—*Connecticut State M. J.*

CHEMICAL TESTS GANGRENE

Lives threatened by gas gangrene infection in war wounds may be saved if a new chemical test proves as successful in the hands of military surgeons as it has in laboratory experiments.

The test depends on detecting in fluid excluded from the wound the presence of enzymes or ferments produced by the germs that cause gas gangrene.

The test was developed by Dr. D. McLean and Dr. H. J. Rogers, of England's Lister Institute of Preventive Medicine, and Dr. B. W. Williams, of St. Thomas's Hospital, London.

Gas gangrene develops so quickly that death may follow within a few hours and even experienced surgeons may have difficulty in making the diagnosis in time for effective treatment. Nor is the bacteriologist able to give him much help.

The new chemical test gives results within an hour and is simple to perform. By using an ordinary white-blood-cell-counting pipette with a few simple precautions it can, the scientists state, be carried out under field conditions.

So far it has been used only in laboratory experiments so that its practical value is not yet known. The scientists who developed it have published their results quickly so that it can be given an early trial in actual practice.

Of the enzymes produced by the gas gangrene germs, one, called hyaluronidase, is also produced by certain other germs. The scientists apparently believe, however, that it would be more practical to test for this enzyme as a diagnostic measure than for lecithinase, the presence of which would give a more specific diagnosis but which is likely to be present in only very small amounts at a time when detection of it would help the diagnosis.—*Science News Letter*

BILATERAL BLINDNESS DUE TO LESIONS IN BOTH OCCIPITAL LOBES

Report of Six Cases, Four with Necropsy

HENRY ALSOP RILEY, M.D., New York City,* JOSEPH C. YASKIN, M.D., M. E. RIGGS, M.D., and A. S. TORNEY, M.D., Philadelphia

THE localization of cerebral lesions is usually relatively easy if evident disturbances of unilateral cerebral functions can be demonstrated. This is true not only for destructive but also for irritative lesions. If a group of symptoms that are dependent upon a single pathologic focus is present, the diagnosis can usually be made by a careful consideration of the train of symptoms and a proper evaluation of the evidence elicited by a thorough examination of the patient, amplified by adequate laboratory procedures. Multiple foci of involvement, either inflammatory, vascular, degenerative, or neoplastic in character, greatly increase the difficulty in localization. Since it is more common to find single rather than multiple lesions, the tendency is to try constantly to explain the symptomatic evidence on the basis of a single lesion and only the presence of irreconcilable facts will justify the conclusion that multiple foci are producing the various indications of disturbed cerebral function. It is usually much more difficult to explain a number of symptoms on the basis of a single lesion; making the diagnosis of multiple lesions exposes the physician to the charge of diagnostic laziness. As a result, the diagnostician endeavors to unravel the symptomatic picture on the basis of a single lesion, ascribing evidences incompatible with the presence of a single lesion to diaschisis, displacement, or distortion. Only when one is driven to the conclusion that the underlying pathologic cause is capable of producing symptoms indicative of multiple involvement is the guess hazarded that a multiple cause is responsible for nonconcordant evidence. Inflammatory and metastatic pathologic processes often produce the picture of widespread multiple involvements. A single progressively expanding lesion arising in or near the midline frequently results in symptoms indicative of bilateral involvement of adjacent structures. The march of events clearly indicates the successive involvement of one function after another and the general symptoms often make perfectly clear the character of the pathologic process. Vascular accidents that occur serially frequently result in multiple lesions, but it is difficult to remember that symmetric simultaneous involvement of bilateral structures may be due to vascular disease.

Disturbances of vision are frequently of great value in the differential diagnosis of cerebral lesions. Characteristic types of visual loss are often of great assistance in making a localizing diagnosis. The pathway of the visual fibers from the retina to the calcarine cortex is definitely established, and only minutiae in regard to the course of the fibers are still under discussion. A knowledge of the anatomic relations of the various parts of the visual pathway is absolutely essential in the determination of the location of any lesion that interferes with the visual function.

Satisfactory vision depends upon the maintenance in a reasonably normal condition of the structures subserving the visual function. This includes the cornea, lens, media, retina, choroid, and the vessels of the retina before one even begins to consider the neural pathways and their complicated course. The transmissive and receptive apparatus must be in satisfactory functioning condition before one can even consider the neural constituents of the visual pathway in coming to any conclusion concerning the locus of factors that interfere with vision. Disturbances in the cornea, the various media, and the retina are frequent causes for bilateral diminution or loss of vision. The diagnosis of such conditions depends upon careful ophthalmoscopic examination. As soon as one passes beyond the parts of the visual apparatus which can be seen and objectively examined, one is in the realm of deduction and theoretic differentiation. It is under these circumstances that a knowledge of the rather intricate course of the visual pathway is indispensable to correct neurologic diagnosis.

Each eye presents a field of vision divisible into a number of parts—the temporal, nasal, upper, and lower fields of vision and macular vision. The mechanics of the media cause the portions of the retina corresponding to the various subdivisions of the visual field to be reversed. The upper and lower visual fields are served by the inferior and superior portions of the retina, respectively, while the temporal and nasal visual fields are served by the nasal and temporal portions of the retina, respectively. The macular field is the region of most acute visual

* From the Neurological Institute of New York.

function and is represented in both occipital lobes. In the optic nerve are combined all the fibers of vision from the entire retina of each eye alone, the fibers from the various upper, lower, temporal, and nasal regions of the retina retaining their position in correspondence to the point of origin of the various fibers, central vision remaining centrally located in the optic nerve. At the optic chiasm, the visual fibers undergo a process of rearrangement; the nasal retinal fibers serving temporal vision undergo a decussation and become crossed in the median portion of the chiasm, whereas the fibers from the temporal retinal cells serving nasal vision proceed caudally without changing sides. In the optic nerve and chiasm, the fibers from the upper retinal region remain dorsally located, whereas the lower retinal elements remain ventral. The macular fibers consist of both crossed and uncrossed elements. Behind the chiasm, the fibers become reassorted so that now each optic tract consists of fibers from each eye; in each tract the homolateral temporal retinal elements are joined by elements arising from the contralateral nasal retinal regions, with macular elements from both sides. This rearrangement results in a visual function of gaze to either one side or the other, contributed to by both eyes cooperating with each other, the left eye looking to the right by means of its temporal retinal elements, the right eye to the right through its nasal retinal elements and vice versa. The upper and lower half quadrants of nasal and temporal vision retain in the optic tract the upper and lower position which they occupied in the optic nerve and chiasm corresponding to their derivation from the upper and lower homolateral and contralateral portions of the retinae. The optic tract also contains coarse fibers which arise from all parts of the retina and are concerned with the transmission of stimuli occasioned by the relative amount of illumination. The optic tract terminates principally in the lateral geniculate body of the homolateral metathalamus. At this point a separation of light from sight fibers takes place, the light fibers passing to the superior colliculus and thence to the homolateral oculomotor nucleus and the contralateral colliculus and oculomotor nucleus for the purpose of completing the reflex arcs that are responsible for the direct and consensual pupillary reflexes. Caudal to the lateral geniculate body the visual radiation carries the visual stimuli to the calcarine cortex, which forms the lips of the calcarine fissure. The ventral lip of the calcarine fissure is continued cephalically as the cortex of the lower margin of the anterior calcarine fissure to its termination on the hippocampal gyrus. The arrangement of the fibers in the visual or calcarine radiation remains much the same as that which exists in the optic tract, the fibers derived from the upper quadrant of the homolateral temporal retinal area and the upper quadrant of the contralateral nasal retinal area ending in the upper lip of the calcarine fissure and vice versa. Outside of this arrival platform level in the calcarine area are secondary and tertiary areas which are concerned with the associational activities of the visual cortex and carry on first the perceptual functions of the visual cortex with the recognition of objects as such and the still higher associational values of nominal appreciation and fusion with other cortical associational functions.

Lesions affecting the visual apparatus produce interferences with vision in accordance with the anatomic location of the lesion and the pattern of the visual pathways at the actual point of involvement. The resulting loss of vision also depends upon the completeness of the involvement of the structures that are affected. Disturbances of any subdivision of the visual function may be complete or incomplete, but any such subtotal disturbance will still present the anatomic characteristics dependent upon the actual anatomic relations belonging to the particular part of the apparatus involved.

Without going into the ultimate minutiae of anatomic subdivisions, lesions of the lens, media, or coats of the eyeball and of each optic nerve produce disturbances in the total vision of each eye. In the chiasm, lesions of the central part of the chiasm produce a loss of vision to each temporal side since the crossing fibers from each nasal retinal region, serving vision to each side, are involved, which results in the so-called bitemporal hemianopsia. A lesion of one side of the chiasm such as might result from the pressure of an aneurysm of the internal carotid artery, will produce a loss of nasal vision in the affected eye (Fig. 1). If the lateral chiasmal lesion is bilateral, a binasal hemianopsia will result. A lesion that involves the optic tract between the chiasm and the lateral geniculate body will result in a homonymous hemianopsia, affecting vision either to the left or right and producing half-eyed blindness in each eye. If the lesion is in the right tract, the result will be a left homonymous hemianopsia, affecting the homolateral temporal retina and producing nasal field blindness while the contralateral nasal retina produces a temporal field blindness, thus destroying all vision to the left and vice versa. The pupillary reflex arising from illumination of the blind halves of the retina will also be lost. If the lesion affects the visual radiation behind the lateral geniculate body, involving the radiation or the calcarine area, the result will be almost the same, produc-

ng a homonymous hemianopsia to the opposite side, but the light reflex from the blind field will be retained since these light fibers have been diverted from the optic pathway to the superior colliculus in front of the location of the lesion and, therefore, are not involved by the lesion. Lesions limited to the upper or lower portion of the chiasm, tract, geniculate body, visual radiation, and calcarine cortex uniformly present disturbances in the upper or lower portion of the associated nasal and temporal fields of the two eyes. Lesions in the associational cortex produce the various visual agnosias, the results of the destruction of the association, correlation, and memory functions of the cortex. The individual may still be able to see objects, but he no longer recognizes the character and significance of visual representations.

Bilateral blindness under usual conditions is the result of bilateral lesions of the mediae, retina, or optic nerves of the two eyes. Neurologic causes for bilateral blindness are bilateral severe retinitis, papilledema, optic neuritis, or bilateral optic nerve atrophy, the result of toxic or infectious processes, bilateral pressure of sphenoidal ridge neoplasms on, or traumatic separation of, the two optic nerves or the entire chiasm, the result of fracture through the floor of the cephalic portion of the middle fossa of the skull, or penetrating wounds.

In the region between the caudolateral angles of the chiasm and the calcarine areas it is almost impossible to produce bilateral blindness because of the fact that the two optic tracts and radiations are widely separated from one another. The two visual radiations, however, gradually approach each other as they proceed caudally, and finally in the calcarine region they are only about 5 mm. apart, separated from each other by the falx just before its incorporation into the tentorium.

The two calcarine areas are almost in contact with each other and are thus vulnerable to midline lesions that occur in that part of the falx, such as a meningioma. A tumor arising in one calcarine area may expand across the midline and progressively involve the other calcarine area until the function of each visual area is destroyed.

Bilateral blindness from crushing injuries of the occipital regions of the skull and from penetrating wounds of the skull occurs with considerable frequency both in civilian accidents and under conditions of warfare. The condition under these circumstances is readily recognized, and the diagnosis can be made without any difficulty. Blindness from progressive subcortical encephalopathy with demyelinization (Schilder's disease) and from extremely severe wide-

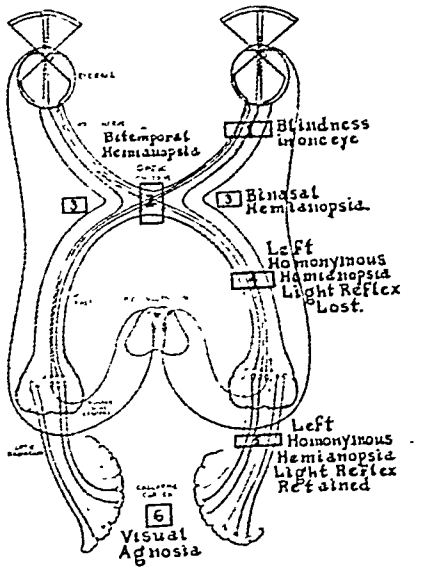


FIG. 1. Diagram of the visual pathway showing the location of lesions which result in disturbances of vision.

spread cortical or subcortical intoxication (carbon monoxide poisoning) is not infrequently encountered, but the circumstances attending the onset and the associated phenomena usually render the diagnosis reasonably easy.

Finally, vascular conditions may result in bilateral involvement of the occipital areas. The major blood supply of the occipital lobes, especially the calcarine areas, is provided by each posterior cerebral artery. Occasionally the anterior cerebral artery may extend far enough caudally in the interhemispheric fissure to contribute to the blood supply of the calcarine areas and rather more frequently some blood supply for this area may be derived from the terminal cortical branches of the middle cerebral artery, but the posterior cerebral arteries produced by the bifurcation of the basilar artery are the main source for the blood supply of the visual cortices.

Certain arteriosclerotic processes seem to present a predilection to involve the vertebral, basilar, and posterior cerebral group of vessels and when this process results in a serious interference with the transmission of blood, bilateral softening of the occipital lobes may result in total blindness.

Von Monakow[1] in 1914 reported 20 cases of total blindness due to bilateral occipital lobe lesions, either from vascular or infiltrating processes. In many of these cases the disturbance first appeared as a hemiopic defect, followed by complete

blindness as a result of involvement of the remaining hemiopic field by the pathologic process. Bramwell[2] and his coauthors in 1915 reported a case of blindness from bilateral lesions of the occipital lobes with retention of macular vision as distinct from panoramic vision. Mella[3] in 1922 reported a case of thrombotic cortical amaurosis, the result of the action of wood alcohol. Marquis[4] in 1932 in reviewing the literature reported 9 patients completely and permanently blind, 6 of these cases being caused by vascular lesions and three being the result of trauma. Two cases were reported by Hemphill[5] in 1941 as results of occlusion of the basilar artery.

The relative infrequency of bilateral blindness due to vascular or neoplastic lesions in both occipital lobes prompted the authors to report these 6 cases—4 with necropsy evidence, one with preservation of central vision, and one showing how the preliminary phase of a situation might have eventuated in total blindness, had it continued its logical course.

Case Reports

Case 1.—Summary: A 64-year-old woman developed, following the death of her husband, a variety of complaints which were regarded as neurotic. In the course of nine weeks she gradually developed complete blindness, first in the left eye and then in the right eye. A study of the fundi disclosed no cause for the blindness. In the course of a few weeks she developed a right facial palsy, pyramidal tract signs, some increase in intraspinal pressure, a metastatic nodule in the neck, and x-ray evidence of carcinoma of the stomach.

History: S. B., aged 64, with an irrelevant family history, a surgical menopause at the age of 23, *widowed in 1937, was first examined on June 7, 1939,* and gave the following historical data: She stated that she took the death of her husband seriously but got along fairly well until about one year before, when she developed marked vertigo, fatigue, anorexia, a coated tongue, drowsiness, and loss of about 10 pounds in weight. This condition continued from May until September, 1938, when she improved and regained the 10 pounds that she had lost. About six weeks before the examination she began to lose sight in the left eye. This, she insisted, was gradual. Accompanying this symptom were loss of appetite, bitter taste in the mouth, fatigability, a feeling of fullness in her feet, pain in the right leg, and some difficulty in sleeping. She stated that in the course of from three to four weeks she lost the sight in her left eye and about two weeks before began to lose the sight in her right eye. About two weeks before she had an attack of dizziness and again another severe attack two days before. She stated that she experienced minor attacks of dizziness off and on. Her chief difficulties are failure in vision of both eyes, anorexia, vertigo, fatigability, and a general feeling of ill-being.

Examination: Weight: 100½ pounds; pulse: 72; blood pressure: 160/70. The examination of the skin and lymphatic system was negative. All the teeth had been removed. The tongue was clean, moist, and did not show any atrophy. The thyroid gland was not enlarged. The heart was moderately enlarged, and there were no murmurs. The liver and spleen were not palpable.

Mentally, the patient showed no gross deviations in the intellectual sphere. Her memory, orientation, and general grasp of knowledge were all quite within normal limits. She continued to repeat herself regarding her difficulties—the fact that every part of her body was dying, that she did not eat for days at a time, etc. The complaints were unaccompanied by any corresponding degree of anxiety. She dwelt at length on the qualities of her husband and on the fact that she had had a very definite social position, which she lost at his death.

Hospital observations: The patient was first admitted to the Graduate Hospital in May, 1939, when a diagnosis of retinal angiosclerosis was made and the absence of free hydrochloric acid was found in the gastric analysis. She was readmitted to the Graduate Hospital on June 21, 1939, and discharged on August 5, 1939. Her temperature was normal, but her pulse during the first two weeks of hospitalization was 60 per minute and less.

She was examined by four ophthalmologists who failed to find any cause for her blindness, which was complete. The pupils were somewhat dilated and responded poorly to light. There were bilateral nuclear cataracts.

Urinalysis, blood count, blood Wassermann, blood sugar, and blood urea nitrogen values were normal. The spinal fluid pressure was 200 mm. of water, and a detailed examination of the spinal fluid was negative. X-ray study of the skull was negative. The x-ray of the chest on June 24, 1939, revealed a moderately sclerotic and dilated aorta with increased truncal markings associated with pleural thickening in the right lung field. In addition there was a nodular opacity in the right upper lung. A re-examination of the chest on July 21, 1939, showed no alterations from those previously noted and the lung changes were regarded as inflammatory and not metastatic. X-ray examination of the long bones showed no evidence of metastases. The Bárány examination suggested the presence of a midline supratentorial lesion.

The patient continued to complain of anorexia, general weakness, and pain in various parts of her body. On July 20, 1939, there were observed a small, hard, partially movable nodule in the right supraclavicular region, a definite right central facial palsy, and a right-sided Babinski sign. Biopsy of this nodule disclosed a scirrhus carcinoma. The x-ray of the stomach revealed a filling defect and an irregularity in the cardiac portion of the stomach, neoplastic in nature.

The patient died at home several weeks after discharge from the hospital, and no necropsy was obtained.

Comment: It is reasonable to assume that this patient had bilateral occipital lobe metastatic carcinoma. This diagnosis is supported by the gradual

onset of the symptoms and the completeness of the blindness, contrasting with the relatively mild pyramidal tract involvement. The personality makeup of the individual and the psychoneurotic reaction masked the slowly developing neoplasms, the more so because the evidences of increased intracranial pressure, especially headache, were slight.

Case 2.—Summary: A 49-year-old white man was admitted several times to the Philadelphia General Hospital, the last two admissions being for a progressive type of neurologic disorder, apparently not limited to one part of the brain, so that a diagnosis of multiple cerebral vascular lesions was made. During his last admission it was noted that the patient had only central vision intact. He died suddenly. The necropsy revealed a softening in both occipital lobes in the course of the posterior cerebral arteries. The tips of both occipital lobes were intact.

History: W. G. (26-155), a 49-year-old white man, had three hospitalizations at the Philadelphia General Hospital in 1920, 1925, and 1926. His history stated that in August, 1918, he had had diplopia which disappeared. In August, 1920, he had been "tongue-tied" for three weeks, but this, too had cleared up. He was admitted to the Philadelphia General Hospital in September, 1920, complaining of severe pain in his right hip radiating down his right leg to his toes. The pain was worse at night. At this time it was noted that his intelligence was markedly impaired; there was a slight dysarthria, impaired vision in the temporal field of the right eye and the nasal field of the left eye, loss of upward rotation of his eyes, and loss of convergence of the right eye. All the tendon reflexes were overactive with bilateral patellar clonus and a questionably positive bilateral Babinski sign. The tongue protruded to the right, and sensation was diminished on the posterior one-third of the tongue. There was an anesthesia of the uvula and left half of the palate. He had an ataxic tremor of the right hand and a positive Romberg sign. The spinal fluid revealed 4 cells and a negative Wassermann reaction. The patient remained at the hospital four years before he was discharged. He was readmitted on the service of Dr. J. W. McConnell on December 21, 1925. Unfortunately, the part of the history dealing with the interval between his discharge from the hospital and his readmission in December, 1925, and the complaints of the patient on readmission in December, 1926, could not be obtained.

Examination: Study of the patient revealed a poorly nourished white man, with evidence of pneumonia at the base of the right lung. He also had evidence of myocardial change as shown by heart sounds of poor quality and roughening of the first sound at the apex. His gait was uncertain, spastic, with some shuffling, and there was a positive Romberg sign. There was no ataxia. There was some exophthalmus of the left eye; the pupils were irregular and eccentric, reacting very slightly to light and sluggishly upon accommodation. There was blindness in both temporal visual fields, and the patient could not see objects more than a few feet in front of him. Although all the ocular movements were retained, convergence was not well done. His speech was slow, jerky, and monotonous. All the tendon reflexes were increased. There was no disturbance of sensation.

Ophthalmologic examination by Dr. Percy De Long: Eye rotations full, no paralysis; pupils irregular and unequal reacting to light and upon accommodation; disks well defined and healthy; blood vessels normal for age; no hemorrhages or exudates. Perimetric examination showed the fields of both eyes to be contracted, with only central vision intact.

The Bárány tests were reported by Dr. Hunter to be normal.

Laboratory studies: March 29, 1925—red blood cells, 4,288,000; white blood cells, 15,800; March 16, 1926—red blood cells, 3,430,000; white blood cells, 9,300. A blood Wassermann reaction was negative. The blood urea nitrogen was 27 mm. per cent; the blood sugar was 11 mm. per cent. A spinal fluid examination revealed no cells and a negative Wassermann reaction.

An x-ray of the patient's chest showed fibrosis in the upper lobe of the right lung and discrete shadows in the left apex, indicating pulmonary tuberculosis. An x-ray of his skull revealed a normal sella turcica.

Course in hospital: The patient slowly lost ground and frequently refused to eat. During his hospital stay he developed signs of cavitation in both apices. Two weeks prior to his death, a drooping of the right side of the face and narrowing of the right palpebral fissure were noted; voluntary facial movements were decreased on the right side; deviation of the tongue to the right took place on protrusion; there was decreased power in the right extremities; and the reflexes in the right extremities were increased. There was a dysphasia, which seemed to be due to a dysarthria, and marked mental deterioration, especially for past events, developed. The patient died suddenly one day on getting out of bed.

Necropsy report: The brain was normal in size. The basilar vessels were fibrotic. On the inferior surface of the right occipital lobe there was a scar of an old vascular lesion. This involved the mesial third of the inferior surface and approximately the posterior half of the inferior mesial surface. The occipital pole appeared to be spared. On section the lesion extended to the ependymal wall of the occipital horn of the right hemisphere and became progressively less extensive above the roof of the occipital horn. The lesion involved the subcortical white matter to a greater extent through the overlying cortex. There was a similar lesion on the left side. Here, there was only a small area of cortical involvement on the inferior surface. The calcarine cortex appeared atrophic but not grossly degenerated. However, on section, the subcortical involvement on the inferior mesial surface was practically identical with that on the right hemisphere. Bilateral cortical lesions in the distribution of the superior cerebellar artery were noted in the cerebellar hemispheres.

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The patient died at home several weeks after discharge from the hospital, and no necropsy was obtained.

Comment: It is reasonable to assume that this patient had bilateral occipital lobe metastatic carcinoma. This diagnosis is supported by the gradual

basis of an extensive alcoholism. Subsequent to his first neurologic examination he experienced more severe attacks which finally resulted in complete blindness. He was operated upon and died.

History: W. C. B. (647668), aged 44, a salesman, was first seen on January 15, 1942. He was admitted to the Neurological Institute on January 19, 1942, and died on January 30, 1942. Complaints: (1) "blackouts," and (2) poor memory.

About 1931, while under the strain of driving an automobile at night the patient became dizzy. He was able to pull his car to the side of the road, left the car, and fell to the ground. He vomited and felt badly for some time, but no further recurrence took place until the onset of the present difficulty.

The presenting symptoms began in the summer of 1941 without previous illness, any particular strain, or accident. While playing bridge he suffered a sudden attack of divergence and rolling of his eyes and inability to talk. He kept yawning for about half an hour. When he began to talk, he mumbled. There was no headache, but he felt very drowsy and sleepy. He recovered completely by the next day.

Two weeks after the attack in 1941 he had another similar episode, and following this second attack these occurrences were repeated frequently. Two or three weeks might go by without an attack or he might have two or three mild episodes in the same day. He had four severe attacks consisting of blurring of vision, turning of objects counterclockwise, and inability to talk. During these periods, he dropped objects from his hands. The attacks might last five or more minutes, after which he felt sleepy. He yawned considerably, but there were no sequelae. In the minor spells his vision became blurry, and he had some dizziness. He usually shut his eyes, and after about five minutes the attack passed off. There seemed to be no particular periodicity, regularity, or exciting causes for the attacks, and they did not seem necessarily to be associated with undue fatigue, nor did they present any relation to his meals. However, they did seem to follow emotional disturbances.

About the first of December, 1941, he had an attack which his wife stated lasted for about thirty minutes, in which he staggered, groped as if he were blind and intoxicated, and could not talk. There was no disturbance of sphincteric control in any of the attacks. He knew what was going on, but he could not talk. He was inclined to be rather talkative after the attack. His memory, on which he formerly prided himself, had become quite poor. He had to apply himself to business matters, and found that he could not remember the names of his business associates.

For many years he had been a periodic drinker. He came from an alcoholic family. His alcoholic career had begun when he was 14 or 15 years old and had continued as periodic alcoholic excesses. These bouts had been separated by varying periods of time. He neglected his meals when he was drinking.

Except for his alcoholic history, and the fact that his mother died at 70 of a cerebral accident, there was nothing important in his past, family, or personal history. He had always been an erratic eater, eating very few potatoes or green vegetables. He smoked about one and one-half packages of cigarettes a day. He had had only one operation, a rectal one for a fistula.

Examination: The patient was rather overweight—173½ pounds—and presented a rather pudgy, pasty appearance. A mottled, erythematous eruption—not burning, itching, or scaling—was found on both hands and forearms, and to a lesser extent on his legs. His blood pressure was 120/70; his pulse rate was 90 per minute. The heart sounds were distant. The cardiac outline was normal on percussion. The radial artery was felt to be normal, but the dorsalis pedis arteries were difficult to palpate.

Neurologic examination: There was some tremulousness under emotional tension. The finger-to-thumb test was performed in a rather disorganized manner. The reflexes were rather underactive. The abdominal reactions were bilaterally present and weak plantar flexion was elicited. There were no sensory disturbances. The visual fields were grossly complete. The fundi showed no definite abnormalities. The pupils reacted normally and were equal, but convergence was poorly maintained.

On the morning of the examination the patient stated that he had been unable to read the paper that morning, but that his distant vision was satisfactory.

On January 17, the patient had several severe spells which were followed by temporary loss of vision and an accentuation of the memory disturbance. There were repeated attacks of confusion, but he did not lose consciousness. His vision continued to be quite variable. He was at times euphoric, and the memory disturbance increased rapidly. On January 18 there were two attacks of confusion and rolling of the eyes, with irregular movements of the extremities but without definite convulsions.

On account of the frequent recurrence of his attacks, the increase in his visual disturbances, and loss of memory, he was admitted to the Neurological Institute on January 19, 1942.

Laboratory studies: Blood count, hemoglobin 13.7 Gm. (94 per cent); red blood count, 4,880,000; white blood count, 14,200; smear, normal; polymorphonuclears, 78 per cent; lymphocytes, 18 per cent; mononuclears, 3 per cent; and eosinophils, 1 per cent. Blood chemistry—nonprotein nitrogen, 40 mg. per cent; sugar 99 mg. per cent. Plasma vitamin C = 0.1 mg. per cent. Sugar tolerance—fasting, 99 mg. per cent; one-half hour, 146 per cent; one hour, 152 per cent; two hours, 135 per cent; three hours, 95 per cent; four hours, 68 per cent. Kline test, negative. Urinalysis—specific gravity, 1.018; alkaline reaction; no albumin, glucose, or acetone; no red blood cells; occasional white blood cells; no casts. Spinal fluid—total protein 60 mg. per cent; very slightly yellow; total white blood cells, 2; colloidal gold, 1,100,000,000; Wassermann reaction, negative. Basal metabolism was −15 per cent. Spinal fluid (January 26, 1942)—total white blood count, 4; total protein, 67 mg. per cent.

tal poles. This case is of particular value in that it demonstrates that the posterior cerebral arteries are not the sole source of blood supply of the occipital poles.

Case 3.—Summary: A 51-year-old colored man gradually lost his vision in 1940. Three days prior to admission to the Philadelphia General Hospital he developed a left hemiplegia (February 16, 1942) accompanied by marked mental confusion. He never regained consciousness and died on the sixth day after hospitalization. A necropsy revealed bilateral old vascular lesions in the terminal distribution of the posterior cerebral and left superior cerebellar arteries.

History: C. S., a 51-year-old colored man was admitted to the Philadelphia General Hospital (Service of J. C. Y.) on February 19, 1942. Because of clouding of consciousness, it was difficult to obtain an accurate history from the patient. A note from the referring physician, Dr. J. W. Roberts, stated that the patient developed a left hemiplegia on February 16, 1942. The patient stated that he had been blind for two years. This was confirmed by his wife, who stated that he had gradually lost his vision. Through the courtesy of Dr. Spaeth, we are able to include the following information taken from the clinic records:

"First seen 10/12/40, complaining of poor vision. A high degree of arteriosclerotic retinal vascular pathology was found. He could only count fingers. On 10/16/40 an effort at refraction resulted in no improvement in his vision. He was last seen 10/19/40 when the diagnosis of hypertensive arteriosclerotic retinal disease was confirmed."

Examination: The skin and mucous membranes appeared normal. The apex beat of the heart was in the sixth interspace in the anterior axillary line. The heart was enlarged on percussion. There was a soft systolic apical murmur with accentuation of the second mitral sound. The blood pressure was 190/150. There was marked peripheral arteriosclerosis.

Neurologic examination: There was a left flaccid hemiplegia and a left hemihypesthesia. The patient was restless, thrashing about with his right arm and leg. Because of lack of cooperation, examination of sensation and coordination of the right side of the body could not be carried out. The ophthalmologic consultant, Dr. J. B. Rudolphy, reported as follows: "The patient's lateral rotations are full. I am unable to elicit upward and downward movements because of lack of cooperation. Both lenses show opacities, the left more than the right. The right disk is well defined, gives no evidence of neuritis or choking, is of good color, and shows no evidence of atrophy. The arteries are generally reduced in caliber and are tortuous. The left disk is well defined, but shows decreased capillarity compared with that of the right.

"Other than well advanced angiosclerosis, there is no definite pathology of the fundi."

There was some clouding of consciousness and mild confusion. The patient seemed to have some difficulty in speaking. He would not talk above a whisper.

Laboratory studies: Urinalysis revealed a trace of albumin and sugar with a negative microscopic examination. The blood urea nitrogen was 27 mg. per cent; the blood sugar was 96 mg. per cent. The blood Wassermann and Kline reactions were reported as being negative.

Course in hospital: The temperature, pulse, and respiration remained at approximately the same level throughout the patient's hospital stay. He complained of some headache. He died suddenly on the sixth day after admission.

Necropsy report: Aorta—advanced atherosclerosis. Heart—severe left ventricular hypertrophy. Kidney—arterio- and arteriolar sclerosis. Brain—chronic passive congestion. The circle of Willis presented severe occlusion and ulcerative arteritis. There was a recent anemic softening involving the right rolandic area and the postcentral convolution. In the occipital lobes there were bilateral symmetric cortical scars. These involved the mesial two-thirds of the occipital lobes in their caudal third. The greater portion of the cunei were involved on the mesial surface, although the immediate area around the calcarine cortices appeared to be grossly uninvolved. The occipital poles were preserved. The cortex in the involved area was firm, brownish, and atrophic. On section, the lesion appeared to involve only the cortex and subcortex; however, the white matter was unusually firm and rubbery. There was a similar vascular lesion involving the cortex of the tentorial surface of the left cerebellar hemisphere in the distribution of the superior cerebellar artery. The white matter of both occipital lobes showed an overgrowth of fiber-forming astrocytes. There was an associated loss of myelin tissue, the demyelinization being most intense in the central regions. There was a relative preservation of the subcortical fibers. The cortex showed many focal lesions of varying age and intensity. These varied from ischemic cellular degeneration of the second and third layers to complete tissue degeneration with mobilization of gitter cells. In some areas the cortical layers were obliterated by astrocytic proliferation. There were perivascular and subarachnoid collections of lymphocytes and plasma cells. The arteries supplying the occipital area showed atheroma with marked narrowing of the lumen. The optic nerve (retrobulbar portion) showed slight, patchy demyelinization. The pathologic changes in this case suggested a progressive circulatory insufficiency rather than a sudden complete occlusion of the main vessel. The round cell infiltration might be accounted for on the basis of reaction to degeneration.

Comment: This man was apparently completely blind. The pathologic changes were in the terminal branches of the vessels that supply the occipital lobes. Moreover, the severe changes in the circle of Willis seriously interfered with the blood supply even if some of the terminal branches had remained intact. Early in the course of his disease the visual impairment was ascribed to vascular changes in the fundi.

Case 4.—Summary: A 44-year-old salesman developed recurrent "blackouts" apparently on the

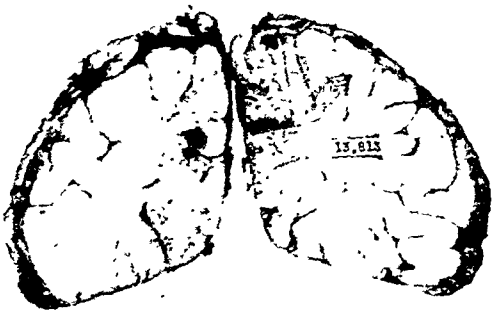


FIG. 3. W. B. Cross section of the occipital lobes showing bilateral old and recent hemorrhage and softening in the calcarine cortex and adjacent areas.

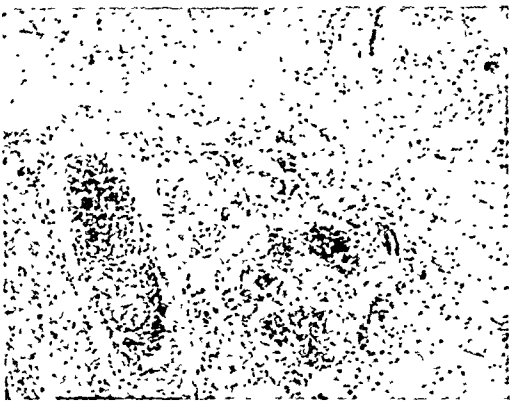


FIG. 4. W. B. Section showing thrombosis of a leptomeningeal arteriole, a branch of posterior cerebral artery, with acute cortical encephalomalacia.

the posterior portion of the adjacent fusiform gyrus. The area affected measures approximately 4 by 4.5 cm. at the surface. There was a similar change involving the right cuneus and posterior portion of the right lingual gyrus as well as adjacent portions of the posterior extremity of the right fusiform and inferior occipital gyri. The leptomeninges over this region showed irregular focal opacities. There was a small recent hemorrhage into the leptomeninges over the rostral portion of the ventral surface of the left side of the pons, measuring approximately 1.5 by 0.75 cm. The corresponding portion of the right side of the pons was deeply indented. The cerebellar tonsils were prominent and approximated toward the medulla. The arteries at the base of the brain showed a number of abnormal changes (Fig. 2). The left vertebral and the caudal portion of the basilar artery were slightly tortuous and showed marked thickening and irregularities of their walls owing to the presence of numerous confluent atheromatous plaques. The internal carotid arteries showed milder but similar changes. There was inequality in the two vertebral arteries, the right vertebral being of very small caliber for a distance of approximately 1.75 cm. before its junction with the left vertebral artery. The left vertebral artery was distended by a large mass of thrombotic material filling the lumen of the vessel. There was an ingrowth of fibroblasts from the intima.

Left occipital lobe: On section of the cerebrum, the swollen softened area described externally was found to involve the cortex and to extend into the subcortical white matter and to a slight extent into the subjacent centrum ovale (Fig. 3). The cortex in this region was discolored a greenish-yellow and was slightly swollen. The line of demarcation between gray and white matter was obscured.

The leptomeninges in the depth of a sulcus contained a large artery which was occluded and distended by thrombotic material. In the leptomeninges about the vessel there were considerable infiltration by lymphocytes, large mononuclear cells, and polymorphonuclears, most of which were intensely degenerated. The remainder of the leptomeninges up to and including the surface of the gyri was less intensely infiltrated and contained erythrocytes and lipoid-laden phagocytes. At the surface of the sulcus the exudate was again markedly degenerated. The underlying cortex showed acute diffuse necrosis with areas of somewhat more chronic malacia. The acute changes were marked by intense congestion, edema, hemorrhages, ischemic necrosis of ganglion cells, and varying degrees of infiltration, perivascular, focal, and diffuse (Fig. 4). A great many cortical capillaries contained hyaline thrombi. In many areas there was an intense necrosis of all neural, glial, and mesodermal elements, including the infiltrating cells. In the slightly older lesions there were lipoid-laden phagocytes and endothelial hyperplasia of the capillaries. The white matter was edematous and showed a lesser degree of diffuse degeneration.

Right occipital lobe: The lesions in the occipital region of this lobe extended to a similar depth in most of the areas involved. Posteriorly, it reached further into the centrum ovale.

A large leptomeningeal vessel was thrombosed, its wall undergoing necrosis. It contained a great deal of nuclear and cellular débris and some polymorphonuclear leukocytes. The leptomeninges were infiltrated by polymorphonuclear leukocytes, lymphocytes, and large mononuclear cells. Many of these showed intense degeneration. In the cortex there was acute necrosis of many of the nerve cells, the necrosis in many being of the ischemic type. There were intense degeneration of all of the glial elements and marked diffuse and some perivascular infiltration by cells similar to those seen in the leptomeninges. Many of the capillaries were thrombosed, the remainder being markedly hyperemic, and a great many recent pericapillary hemorrhages were present. There were similar hemorrhages into the subjacent white matter. The cortex of an adjacent gyrus showed a similar severe change. The nearby white matter, subcortical and central, contained a large area of older encephalomalacia. Here there



FIG. 2. W. B. Cross section of left vertebral artery showing arteriosclerosis and thrombosis.

X-rays: Antero-post., postero-ant., and left stereos of the skull showed the vault to be somewhat larger than usual, but it was not abnormal in thickness or shape. The sella turcica was normal in size and shape and was not atrophic. There was considerable calcification in the walls of the internal carotid arteries, particularly the left one. The pineal gland was not visible. The right mastoid was poorly developed and aerated; the left appeared to be normal. The sphenoid and petrous ridges were equal. Impression: moderate cerebral arteriosclerosis.

EEG: 16 lead eeg. with monopolar and bipolar recording. Disorganized EEG. Hyperventilation negative.

Course in hospital: During the period of hospitalization the patient had many transient attacks, often repeatedly in a single day, in which he became semiconscious and lethargic; he was confused and responded vaguely when questioned; his breathing was stertorous, and his eyes rolled from side to side, but no definitely convulsive manifestations developed. These attacks lasted about two minutes. Following these spells his vision became progressively diminished, and his memory disturbances became more marked. He complained quite consistently of severe headaches.

A re-examination on January 23, 1942, showed that he was almost completely blind with only variable appreciation between light and darkness. The retinal arteries showed some evidence of arteriosclerosis, and it was believed that spasm of the retinal arteries was responsible for the increase in his loss of vision. Vasodilators were used and for a time there seemed to be some response; the vision gradually improved, and he had a better appreciation of light and darkness. On one examination of the fields it was found that appreciation of light and dark was present at all points except in the inferior field in the left eye. It was then suspected that there might be some chiasmal lesion and an encephalogram was made on January 26, 1942, the results of which were as follows: Encephalogram after the withdrawal of 90 cc. of fluid and the injection of 85 cc. of oxygen showed the lateral and third ventricles to be normal in size, shape, and position. The aqueduct, fourth ventricle, and cerebral sulci appeared normal. The cisterna chiasmatis was obliterated, and there was a concave filling defect in the rostral portion of the cisterna interpeduncularis. The sulcal markings were well visualized over the right hemisphere, but only a few were noted on the left side. Impression: suprasellar tumor, probably a meningioma, possibly a pituitary adenoma, and, last, an aneurysm of the circle of Willis.

The x-ray of the skull showed that the patient had a moderate cerebral arteriosclerosis, but the interpretation of the encephalogram strongly suggested that there was some lesion in the vicinity of the optic chiasm, either vascular or adhesive in character, which had resulted in the obliteration of the cisterna chiasmatis and the production of the concave filling defect in the rostral portion of the cisterna interpeduncularis.

In the belief that there might be present a removable expanding lesion or possibly the presence of adhesions involving the optic chiasm, which could be separated, an operation for the exposure of the region of the chiasm was carried out on January 29, 1942, by Dr. Byron Stookey.

Following operation the patient showed considerable shock. He was in a stupor but would respond to pinprick. His temperature rose rapidly, his condition became worse, breathing became irregular and stertorous, there was evidence of circulatory failure, and in spite of supportive treatment the patient died on the evening following the day of his operation, the terminal temperature being 109 F.

Necropsy: Dr. Abner Wolf, the neuropathologist of the Neurological Institute, kindly supplied the following report of the postmortem examination. A complete necropsy was performed two hours postmortem on January 30, 1942. The results of the postmortem examination showed: sclerosis of the coronary arteries; cerebral arteriosclerosis; a congenital smallness of the right vertebral artery; thrombosis of the posterior cerebral and left vertebral arteries; encephalomalacia of both occipital lobes, old and recent; and recent softenings in the pons and thalamus; a fatty liver; bilateral lobular pneumonia; acute diverticulitis; nephrolithiasis; fibrous peritoneal adhesions; acute ulcerative proctitis; and acute splenic tumor.

Postmortem examination of the brain showed the following: weight 1,560 Gm. The cerebral hemispheres were asymmetric because of the flattening of the convex surface of the right frontal lobe. This had resulted from a considerable extradural operative hemorrhage in that region. The gyri in this zone were depressed and the sulci narrowed. Small recent hemorrhages on the surface of the right superior parietal lobule, the posterior portion of the left fusiform gyrus, and the inferior aspect of the right frontal pole medially were present. The more ventral of the inferior left occipital gyri was swollen, slightly protuberant, somewhat pallid, and quite soft to palpation. There was a similar change in

arterial disease was seen in the retinal arteries. There was a slight left central facial weakness.

Laboratory studies: Blood count: hemoglobin 14.8 Gm. (102 per cent); red blood cells, 4,540,000; smear, moderate macrocythemia; white blood cells 8,200; polymorphonuclears, 52 per cent; lymphocytes, 39 per cent; mononuclears, 4 per cent; eosinophils, 4 per cent; basophils, 1 per cent. Urinalysis: specific gravity, 1.004; reaction acid; albumin reaction, positive; no glucose or acetone; occasional red blood cell; rare white blood cell; occasional hyaline cast. Ventricular fluid: Total white blood cell, 3; red blood cell, 276; total protein, 16 mg. per cent.

X-ray of skull: Antero-post., postero-ant., and left lateral stereograms of the skull showed the vault to be of average thickness and not unusual in size or shape. There was advanced calcification in the walls of the internal carotid arteries. There was no evidence of increased intercranial pressure and the vascular channels, sella turcica, sphenoid, and petrous ridges appeared to be normal. The pineal gland was in the midline and by measurements was in its normal position. Impression: advanced cerebral arteriosclerosis.

A ventriculogram was performed under the impression that the patient was suffering from a right temporal infiltrating neoplasm. The ventriculogram showed the following: The lateral and third ventricles were somewhat enlarged, but they were in their normal position. The aqueduct and fourth ventricle were normal in size, shape, and position. The cerebral sulci appeared to be rather coarse. There was no evidence of a tumor. Impression: moderate, diffuse, bilateral cerebral atrophy, probably due to the arteriosclerosis. The negative ventriculogram and the evident arterial disease led then to the diagnosis of cerebral arteriosclerosis.

Course in hospital: the patient became somewhat drowsy and vision became obviously poorer. Fundus examination showed an advancing arteriolar disease with venous congestion, but no hemorrhages or patches of exudate. The patient continued to fail after ventriculography. The blood pressure on admission was 184/130 and presented rather wide fluctuations, reaching as low a level as 130/90 after the ventriculogram, and increasing to 208/148 as death approached.

Necropsy: Dr. Abner Wolf, the neuropathologist of the Neurological Institute, kindly supplied the following report of the postmortem examination. A complete necropsy was performed one and three-quarter hours postmortem on February 21, 1941. The results of the postmortem examination of the body showed the presence of generalized arteriosclerosis; thrombosis of both posterior cerebral arteries; encephalomalacia of both occipital lobes, the pons, and cerebellum; acute glomerulonephritis; advanced sclerosis of the coronary arteries; healed infarct of the left ventricular wall; cardiac hypertrophy and dilatation, calcification of the aorta; atrophy of the liver; cholelithiasis; fibrous pleural and peritoneal adhesions.

Postmortem examination of the brain showed the following: weight 1,420 Gm. The cerebral



FIG. 5. C. S. Cross section showing bilateral encephalomalacia of the calcarine and adjacent areas.

hemispheres were approximately symmetric. The gyri were well rounded and the sulci of normal width. The lingual gyri and adjacent ventral occipital gyri were soft to palpation but were not discolored (Fig. 5). The lateral extremity of the left cerebellar hemisphere showed an area of depression approximately 1.5 by 1 cm. in extent and 0.5 cm. deep. The folia were soft to palpation in this area and presented a grayish-yellow discoloration. A triangular zone anterior to this depressed lesion and measuring 2 by 1.5 cm. was soft but not sunken or discolored. The brain stem showed no external abnormalities. The arteries at the base of the brain were tortuous and showed focal dilatation and marked atheromatous changes in their walls. The most severe changes were those in the basilar and right vertebral arteries. The left vertebral artery was rudimentary, and the right vertebral artery was equal in caliber to the basilar artery. Atheromatous changes were also found in the smaller branches of the anterior, middle, and posterior cerebral arteries, but these were much less marked than those in the large basal vessels.

On section of the brain the areas of softening described externally in the occipital lobes were found to involve the lingual gyri and adjacent posterior extremity of the ventral occipital gyri. The cunei did not appear to be involved. The cortex of the affected gyri was swollen, yellowish-green, and friable.

The depressed lesion in the left cerebellar hemisphere showed chiefly atrophy and yellowish discoloration of the bordering folia. It appeared to be an older softening. A branch of the right posterior cerebral artery supplying the anterior portion of the softened area was filled with opaque, yellowish-white material. A small branch of the left posterior cerebral artery showed a reduction of its lumen to a narrow slit by dense, cream-colored material. The lateral and third ventricles were moderately dilated but showed no abnormalities of their walls.

Right posterior cerebral artery: The intima was markedly thickened, reducing the lumen of the vessel to a narrow space.

Left posterior cerebral artery: This vessel showed

was complete loss of neural and neuroglial elements with formation of irregular cysts in which numerous lipoid-laden phagocytes were present. There was, in addition, occasional perivascular infiltration by lymphocytes, large mononuclear cells, and eosinophils.

Section of the brain stem revealed a large, poorly outlined, irregular area of slight discoloration, edema, and softening in the basilar portion of the rostral extremity of the pons, chiefly to the right of the midline, but also extending somewhat toward the left. This type of change also extended into the midline of the tegmentum, reaching a point midway between its ventral and dorsal extremities. The architectural markings of the ventral portion of the middle of the tegmentum and of the left side of the reticular area were somewhat reduced. The parenchyma was essentially intact, however, in this zone. Examination of the optic nerve showed no evidence of demyelinization. The rest of the brain stem showed no gross abnormalities.

Comment: A review of this situation disclosed the fact that insufficient attention was paid to the transient obscurations of vision which took place, and to the irregular rolling movements of the eyes which accompanied what the patient described as "blackouts." The general description of these attacks resembled *petit mal* seizures, but the accompaniment of the seizures by the visual and oculomotor disorders should have indicated the fact that these were not typical *petit mal* seizures but were seizures of a similar nature originating from circulatory disturbances in the occipital lobes. Postmortem investigation demonstrated the fact that the arteriosclerosis, both general and cerebral, was far out of proportion to the clinical evidences found on physical and neurologic examination. The clinical picture was further obscured by the misleading results obtained by pneumencephalography, which seemed to indicate the presence of a remediable lesion in the vicinity of the optic chiasm. The pathologic findings in connection with the two vertebral arteries, the basilar, and both posterior cerebral arteries, afforded a complete explanation for the episodic attacks of visual obscuration and the eventual almost total blindness which the patient presented after his admission to the Neurological Institute. His transient attacks preceding the establishment of the final blindness substantiated the supposition that the attacks were due to temporary obstruction of the blood supply of the occipital lobe which finally, owing to the advance of the process, resulted in complete destruction and softening of both visual areas. The necropsy findings indicated repeated interferences with the circulation of the occipital lobes, the older ones coinciding quite accurately with the time of onset of the final picture.

Case 5.—Summary: A 62-year-old man developed symptoms of cerebral involvement over a period of three months. Physical examination disclosed arteriosclerosis, left pyramidal tract signs, and increasing blindness.

History: C. P. S. (633593), aged 62, was admitted to the Neurological Institute on February 10, 1941, and died on February 21, 1941. The record of this patient was made available to us through the courtesy of Dr. Byron Stookey.

The chief complaints were: (1) ringing in the ears; (2) dizzy spells; (3) numbness and weakness of the left arm and leg for three months, and (4) blurring of vision for three months. The ringing in the ears had been present as a constant noise, noticed only when the patient was in quiet surroundings, for several years before admission to the hospital. There had been no material impairment in hearing, and no hallucinatory experiences had occurred.

In the early part of 1940 the patient began to suffer from attacks of dizziness, usually brought on by leaning forward. The room seemed to him to revolve, usually from left to right. These attacks increased progressively in frequency and severity. The dizziness affected his gait, causing it to be unsteady, and he required support. He was very unsteady in walking at night.

Since November, 1940, he had been conscious of numbness and tingling in his left lower extremity. This occurred at intervals and later spread to involve the left hand and forearm. Recently it had affected the right leg and foot also. During these spells of numbness and tingling there had been some weakness in the extremity, but not in the intervals between attacks.

Diminution in vision had been noticed also since November, 1940, and although glasses were prescribed, they afforded no relief. The difficulty first involved near vision, but later distant objects also were obscured. There had been no material headache.

There was no history of cardiovascular disease in the family.

The patient's past history was unimportant. He had two children, living and well.

Examination: The general physical examination showed some vascular pigmented nevi. There was slight edema of the ankles. The heart was enlarged to the left, the apex impulse being 14 cm. to the left of the midsternal line. An apical systolic murmur was present. The palpable blood vessels were thickened and tortuous. The liver was palpable 3 cm. below the costal margin and a large, right, reducible inguinal hernia was present.

Neurologic examination: The patient was right-handed. There was a fine tremor of the hands which was made worse on intentional movements. There was a generalized hypotonicity. There was some slowness in performing succession movements in the right upper extremity. The reflexes were underactive, but equal. Abnormal reflexes were obtained from both plantar surfaces, and definite Babinski and confirmatory signs were elicited from the left foot. Examination of the visual fields showed a marked concentric reduction in the visual fields, with particular involvement of the upper left homonymous field. Another examination of the visual function showed a visual acuity of 10/200; the only retained field consisted of a narrow, concentric zone in the right lower homonymous fields. Examination showed that the disks were hyperemic and swollen, each measuring one diopter. Evidence of advanced

arterial disease was seen in the retinal arteries. There was a slight left central facial weakness.

Laboratory studies: Blood count: hemoglobin 14.8 Gm. (102 per cent); red blood cells, 4,540,000; smear, moderate macrocythemia; white blood cells 8,200; polymorphonuclears, 52 per cent; lymphocytes, 39 per cent; mononuclears, 4 per cent; eosinophils, 4 per cent; basophils, 1 per cent. Urinalysis: specific gravity, 1.004; reaction acid; albumin reaction, positive; no glucose or acetone; occasional red blood cell; rare white blood cell; occasional hyaline cast. Ventricular fluid: Total white blood cell, 3; red blood cell, 276; total protein, 16 mg. per cent.

X-ray of skull: Antero-post., postero-ant., and left lateral stereograms of the skull showed the vault to be of average thickness and not unusual in size or shape. There was advanced calcification in the walls of the internal carotid arteries. There was no evidence of increased intercranial pressure and the vascular channels, sella turcica, sphenoid, and petrous ridges appeared to be normal. The pineal gland was in the midline and by measurements was in its normal position. Impression: advanced cerebral arteriosclerosis.

A ventriculogram was performed under the impression that the patient was suffering from a right temporal infiltrating neoplasm. The ventriculogram showed the following: The lateral and third ventricles were somewhat enlarged, but they were in their normal position. The aqueduct and fourth ventricle were normal in size, shape, and position. The cerebral sulci appeared to be rather coarse. There was no evidence of a tumor. Impression: moderate, diffuse, bilateral cerebral atrophy, probably due to the arteriosclerosis. The negative ventriculogram and the evident arterial disease led then to the diagnosis of cerebral arteriosclerosis.

Course in hospital: the patient became somewhat drowsy and vision became obviously poorer. Fundus examination showed an advancing arteriolar disease with venous congestion, but no hemorrhages or patches of exudate. The patient continued to fail after ventriculography. The blood pressure on admission was 184/130 and presented rather wide fluctuations, reaching as low a level as 130/90 after the ventriculogram, and increasing to 208/148 as death approached.

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Postmortem examination of the brain showed the following: weight 1,420 Gm. The cerebral



FIG. 5. C. S. Cross section showing bilateral encephalomalacia of the calcarine and adjacent areas.

hemispheres were approximately symmetric. The gyri were well rounded and the sulci of normal width. The lingual gyri and adjacent ventral occipital gyri were soft to palpation but were not discolored (Fig. 5). The lateral extremity of the left cerebellar hemisphere showed an area of depression approximately 1.5 by 1 cm. in extent and 0.5 cm. deep. The folia were soft to palpation in this area and presented a grayish-yellow discoloration. A triangular zone anterior to this depressed lesion and measuring 2 by 1.5 cm. was soft but not sunken or discolored. The brain stem showed no external abnormalities. The arteries at the base of the brain were tortuous and showed focal dilatation and marked atheromatous changes in their walls. The most severe changes were those in the basilar and right vertebral arteries. The left vertebral artery was rudimentary, and the right vertebral artery was equal in caliber to the basilar artery. Atheromatous changes were also found in the smaller branches of the anterior, middle, and posterior cerebral arteries, but these were much less marked than those in the large basal vessels.

On section of the brain the areas of softening described externally in the occipital lobes were found to involve the lingual gyri and adjacent posterior extremity of the ventral occipital gyri. The cunei did not appear to be involved. The cortex of the affected gyri was swollen, yellowish-green, and friable.

The depressed lesion in the left cerebellar hemisphere showed chiefly atrophy and yellowish discoloration of the bordering folia. It appeared to be an older softening. A branch of the right posterior cerebral artery supplying the anterior portion of the softened area was filled with opaque, yellowish-white material. A small branch of the left posterior cerebral artery showed a reduction of its lumen to a narrow slit by dense, cream-colored material. The lateral and third ventricles were moderately dilated but showed no abnormalities of their walls.

Right posterior cerebral artery: The intima was markedly thickened, reducing the lumen of the vessel to a narrow space.

Left posterior cerebral artery: This vessel showed

a less marked, but considerable, thickening of its intima, which resulted in a definite reduction in the lumen of the vessel.

Right occipital lobe: The leptomeninges were edematous, congested, and showed considerable hyperplasia of the leptomeningeal elements. Some of the smaller arteries contained amorphous pink material which partially filled their lumina. One of these showed a partial occlusion of the lumen by this material. A number of the medium-sized arteries showed thickening of their intima. One small artery showed almost complete occlusion of its lumen by thrombotic material with a beginning ingrowth of fibroblasts. The cortex in this entire region showed marked softening which varied in age in different areas. For the most part, it was quite acute. The nerve cells had undergone ischemic necrosis, and many of them had disappeared. There was also widespread degeneration of the neuroglial elements in these areas without any mobilization of microglia or any endothelial hyperplasia of the blood vessels.

Some of the cortical vessels in these zones were filled by masses of pink amorphous material. In one such area small masses of hematoidin were found scattered near the margin of the zone, where it abutted upon a more chronic softening. Here the cortical architecture had disappeared, the nerve cells and most of the neuroglial cells having been destroyed. The tissue was cribriform and contained many lipoid-laden phagocytes. In a nearby sulcus, an arteriole showed almost complete occlusion of its lumen because of extreme thickening of its intima. There were some areas of more chronic softening in the subcortical white matter as well. The best preserved cortex was in the calcarine area. Phosphotungstic acid stain: There was mild to moderate astrocytosis at the margins of the older areas of softening.

Left occipital lobe: A medium-sized artery in the calcarine fissure was distended by a thrombotic mass, which almost completely filled it. The cortex of the gyri on either side of the fissure showed intense degeneration, as did part of the underlying white matter. Here again the degeneration was both acute and chonic, the major portion of it being acute. In the areas of more recent necrosis, the nerve cells showed ischemic degeneration and there was degeneration of the neuroglial and microglial cells. The blood vessels showed degeneration of their walls, and there were scattered small hemorrhages. Some of the smaller leptomeningeal and many of the cortical vessels were filled with amorphous pink material. The more chronic softenings showed the same appearances as those described in the right occipital lobe, with endothelial hyperplasia of the walls of the capillaries, in addition. The softening of the white matter was milder, and was both acute and chronic. Phosphotungstic acid stain: The findings were similar to those described in the right occipital lobe.

Comment: This patient presented the picture of cerebral arteriosclerosis with some evidence of focal involvement of the right hemisphere, followed by a similar situation in the left hemisphere. A gradual encroachment upon vision took place with eventual almost complete blindness due to symmetric vascular involvement of both occipital lobes.

Case 6.—Summary: A 38-year-old woman gradually became aware of a loss of vision in the right eye. Ventriculography disclosed a neoplasm of the occipital region which was removed at operation.

The following case history is introduced into this discussion not because of the presence of a total blindness but because of the presence of a right homonymous hemianopsia with an invasion of the left homonymous field of vision. It was believed that if the condition had been allowed to progress, a continuing and advancing involvement of the right calcarine area would have produced a complete blindness because of bilateral destruction of the calcarine areas.

History: M. S. (661823) aged 38, a housewife, was admitted to the Neurological Institute December 1, 1941, and discharged December 8, 1941. The record of this patient was made available to us through the courtesy of Dr. Cornelius G. Dyke.

She complained of difficulty in seeing objects to the right for the past ten days. Her visual difficulty was attracted to her attention by the fact that during the past ten days she found she did not see the last two words of each printed line as she read. On reconsideration, she believed that for the past four or five months she had been less aware of cars approaching her from the right, and in October she had scraped the right running board of her car against the side of a bridge. She later noticed that she bumped into people who approached her from the right. Her actual visual acuity was not changed, and she had no difficulty in threading a needle.

During the past several months she had had some headache in the early morning, which was generalized, and improved after she had been moving about for a time. There was no exacerbation of the headache with coughing or changes in position. Once shortly before examination, during defecation, she experienced a sharp, knife-like pain across the back of the neck.

The past history was uneventful except that in March, 1940, she contracted an otitis media in the left ear, which ruptured and drained. X-ray of the mastoid showed a simple mastoiditis, which was operated upon and healed after about five weeks of drainage. The infecting agent was understood to be a type III Pneumococcus. Audiometric examination made later showed some impairment in the hearing of the left ear. She had not suffered from any vertigo, dizziness, or tinnitus. In September, 1941, she struck her head quite severely against a low ceiling but was not dazed or incapacitated.

Examination: There was no general systemic abnormality. She was left-handed. There was some reduction in the automatic movements of the right arm in walking. There was no inequality in the reflex responses. The abdominal reactions were questionable, and moderate bilateral plantar flexion was present. There was no change in the superficial, deep, or cortical types of sensibility. No agnosias were present. On gross testing she was found to have a right homonymous hemianopsia with an homonymous invasion of the left fields of vision

(Fig. 6). The pupils measured 3 mm. in diameter and reacted normally. There was no limitation of ocular movements. Hearing in the left ear was somewhat impaired, and the bone-air conduction formula was reversed: hearing was lateralized to the left. Audiograms showed a slight reduction in hearing in the left ear for low tones.

Laboratory studies: Blood count—hemoglobin, 10.5 Gm. (72 per cent); red blood cells, 3,820,000; smear, slight anisocytosis; white blood cells, 10,600; polymorphonuclears, 69 per cent; lymphocytes, 26 per cent; mononuclears, 3 per cent; eosinophils, 2 per cent. Blood chemistry—nonprotein nitrogen, 30 mg. per cent; sugar, 105 mg. per cent. Blood Kline test—negative. Sugar tolerance test—fasting, 105 mg. per cent; one-half hour, 136 mg. per cent; one hour, 103 mg. per cent; two hours, 88 mg. per cent; three hours, 84 mg. per cent; four hours, 130 mg. per cent. Urinalysis—specific gravity, 1.006; reaction, alkaline; no albumin, glucose, or acetone; no red blood cells; occasional white blood cells; no casts. Spinal fluid—total protein, 62 mg. per cent; total white blood cells, 2; Colloidal gold—1,100,000,000. Wassermann reaction was negative. Basal metabolism was −20 per cent; test satisfactory.

X-rays, antero-post., and postero-ant., basal, cerebellar and left lateral stereograms of the skull, and a film of the optic foramina showed the vault to be of average thickness and not unusual in size or shape. The posterior clinoid processes and the dorsum sellae appeared unusually thin and delicate, without direct evidence of atrophy. The sella turcica was not unusual in size or shape. The vascular channels and sutures did not appear unusual. The superior ridge of the left petrous pyramid from the arcuate eminence medially was less dense than the right. A bony defect was present in the left mastoid. The pineal gland was displaced 4.5 cm. to the right of the midline, and by measurements it was at the posterior limits of the normal zone in the antero-post. plane, but was well within the normal zone in the vertical plane. Impression: left cerebral tumor; the decalcification of the medial half of the superior margin of the left petrous pyramid suggested that the lesion was located here. An epidermoid, either extra- or intradural was believed to be the type most likely capable of producing the changes that have been described.

However, in view of the mastoidectomy, it was considered possible that the condition was an extradural abscess.

Encephalograms taken after the withdrawal of 75 cc. of fluid and the injection of 70 cc. of oxygen failed to show any gas in the ventricular system. There was considerable gas in the subdural, subtentorial space, and on the left side the gas shadow was somewhat irregular and formed an abnormal curve.

There was also some gas in the subdural space over the right cerebral hemisphere. This did not appear unusual in the antero-post. or postero-ant. views. There was some gas around the splenium of the corpus callosum, seen in the left upright lateral stereograms, and it had a more angular appearance

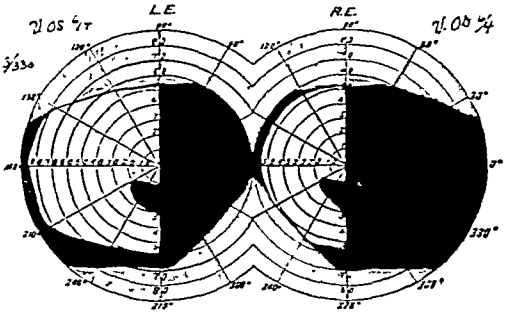


FIG. 6. (M.S.) Visual fields showing complete right homonymous hemianopsia and beginning encroachment upon the left homonymous fields, produced by a meningioma arising from the falx, destroying the left visual area, with extension through the falx and involvement of the right calcarine area.

than usual. The gas in the central portion of the cisterna ambiens was displaced to the right. There was some gas in the cisternae pontis and interpeduncularis, and this did not appear unusual. In the right horizontal lateral stereograms there was a rather unusual shadow in the occipital area to the right of the midline which was interpreted as normal brain outlined by subdural gas on the medial aspect of the right occipital lobe. It was believed that this peculiar shadow was due to pressure from the left occipital lobe against the falx in contact with the medial surface of the right occipital lobe. There was gas in the left sylvian fissure, and these gas shadows appeared to be cut off and somewhat deformed. A few sulcal markings were seen on the right side.

There was some gas in the subarachnoid space and over the vermis of the cerebellum. Impression: The evidence indicated a left cerebral mass located just above the left petrous pyramid, and it was believed that the lesion was an epidermoid, probably subdural.

Following the encephalogram there was some slight increase in reflex activity consistently found in the left extremities. There was slight swelling of the upper pole of each optic disk, seen best with a plus 2 lens. The nasal margins appeared to be slightly hazy.

The examination of the patient and a study of the visual fields indicated the presence of a neoplasm.

Since the gas introduced at the time of the encephalogram had failed to enter the ventricular cavity and the clinical indications as to the localization of the neoplasm were not clear, it was believed that ventriculography was indicated. Since emergency operation is sometimes necessary after the performance of ventriculography and since it was desired to have any operative procedures carried out at the Mayo Clinic, it was decided to postpone further studies and have the final steps carried out there. Consequently the patient was transferred to the Clinic, where she

was studied by the neurosurgical staff. We are indebted to Dr. W. McK. Craig for information as to the further investigation of the patient.

A complete revaluation of the clinical situation was carried out and the principal features previously disclosed were corroborated. On account of obvious discrepancies in the symptoms and physical signs and the peculiar shadow discovered by the x-ray examination made at the Neurological Institute, further x-ray studies were made. Because of the shift of the pineal gland disclosed in previous x-rays of the skull, it was suspected that the lesion was farther back than the temporal lobe and the optic chiasm. For that reason, ventriculograms were made which revealed a large space-occupying lesion in the left occipital lobe. At operation this proved to be a meningioma which extended from the surface of the cortex to the falx, to which it was attached. The tumor had invaded the falx, and there was a small portion of the tumor on the right side of the falx. The tumor proved to be a cellular meningioma which had replaced practically the entire occipital lobe and it was removed by resection of the left occipital lobe and the involved portion of the falx.

The patient successfully passed through the operation and convalesced satisfactorily. A slight aphasia developed immediately after the operation, but it completely cleared up.

Comment: This patient presented a meningioma which had destroyed the left calcarine area and was in the process of encroaching upon the corresponding cortical area of the right occipital lobe. If this process had been carried to its logical conclusion, she would have been completely blind from the bilateral effect of a neoplasm arising from the occipital portion of the falx.

Summary and Conclusions

The visual pathways from the corneas to the occipital poles are reviewed from a clinico-anatomic standpoint with special reference to bilateral blindness. Bilateral blindness due to lesions in both occipital lobes may be caused by subcortical degenerative processes, trauma, tumors, toxic encephalopathy, and vascular lesions.

Vascular lesions produce bilateral blindness through occlusion of both posterior cerebral arteries, or complete occlusion of the basilar artery. In these cases some central (macular) vision may be retained if the occipital poles have an additional blood supply from the branches of the middle or anterior cerebral arteries. In some cases the visual area is affected primarily by changes in the small terminal vessels, as in Case 3.

Of the 6 reported cases, 4 were caused by vascular lesions and were verified by autopsy. One case was due to metastatic carcinoma of the stomach and another was due to a meningioma.

Bilateral blindness, when not due to discernible changes in the media, choroid, retina, optic nerve, or, in early stages, to chiasmal field changes, must be considered as being due to bilateral lesions in the geniculo-calcarine pathways especially the occipital lobes, or to psychi causes. The insidious onset of the blindnes and the masking by the associated symptom make an early diagnosis difficult.

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Discussion

Dr. W. B. Hamby, *Buffalo*—This topic is of great importance to the neurologist and his colleagues, and since the number of reported cases is small, I should like to record another case of blindness due to occipital polar abscesses.

Case Report

A 24-year-old white railroad maintenance worker was examined by the Draft Board on August 30, 1941, and his vision measured 20/20. His status was not settled but he was considered deferable because of a left lung abscess diagnosed five years before and considered clinically cured.

On September 18, 1941, while at work, he developed a sudden severe frontal headache and went home. The pain was relieved by medication, and he returned to work the next day. Three days later he suddenly noticed dazzling light before him, and he became blind. On September 24 he vomited and had headache, emesis continuing for two days.

On September 26 the patient was brought to my office. He was a powerfully built young man and was guided in by his father and brother, who were holding his arms. In spite of this, he encountered obstacles. When put before a chair and told to sit, he did not grope for it, as the blind do, but launched himself at it so as to sit half on the seat and half on the arm. Since he proclaimed his blindness loudly, he was told to walk through a cleared path in the room. Apparently he would go out of his way to walk into furniture. Careful neurologic examination revealed no abnormalities except the subjective blindness.

I was inclined to consider this a case of hysterical blindness precipitated by worry over military possibilities, but his physician insisted that he had no reason to fear being drafted. The patient was admitted to the Buffalo General Hospital on September 29.

On examination in the hospital, the patient apparently was in discomfort and kept his eyes closed most of the time. The skull was normal to clinical and roentgenographic examination. The ocular movements were full and free, with a few nystagmoid motions on lateral gaze. The pupils were round, equal, and regular, and they reacted to light. The patient would not accommodate to his own finger. The retinas and optic disks appeared normal. Vision was difficult to evaluate; the patient would be



FIG. 7. Left—View of lower half of brain showing abscess in both occipital poles and edema of white matter particularly on left side. Right—Upper half of hemispheres, same case.

completely blind in all fields to an object or a light shortly after saying he could see the examiner. The neurologic examination otherwise was normal.

The heart was normal to examination, his blood pressure was 130/85, and his pulse was 70. The chest examination gave evidence of old fibrosis in the left lower lung.

Blood counts on two occasions showed no gross abnormality. A lumbar puncture revealed increased pressure. The fluid contained 186 white blood cells, with 95 per cent lymphocytes and 130 mg. of total proteins.

On October 1, 1941, an encephalogram was attempted, but no air entered the cranium. Trephines then were made 6 cm. above and 3 cm. to each side of the inion for ventriculography. When the dura was incised, brain substance protruded. A cannula was introduced in search of the left lateral ventricle and about 3 cm. from the surface, encountered an abscess without a definitely palpable capsule. Fifteen cubic centimeters of thick, creamy yellow, foul-smelling pus was aspirated. A second cannula was introduced on the right side and another abscess was encountered, 2 cm. from the surface. Fifteen cubic centimeters of similar pus was aspirated. While the trephine openings were being enlarged, the patient had a fit of coughing and expectorated a large quantity of pus very similar to that found in the brain. Rubber tissue drains were introduced into each abscess, and the wounds were dressed. No organisms grew on aerobic or anaerobic cultures of the pus and cerebrospinal fluid.

The patient did well for several days. He never again expectorated pus or complained of pulmonary symptoms. About a week later, however, he began to have peculiar emotional changes, with alternating periodic rages and depressions. The abscesses drained well and the spinal fluid pressure was elevated to around 300 mm. of water. After an early improvement, vision again failed. With the great emotional changes, another frontal lobe abscess was suspected. The patient died suddenly on the eleventh postoperative day.

Postmortem examination revealed an abscess filling out the entire left occipital pole and extending laterally and upward into the parieto-occipital region. It measured 4 by 5.5 cm. This abscess showed a somewhat irregular recess-like extension upward and medial, forming an almost separate abscess about 3 cm. in diameter. Both were filled with a decidedly fetid, rather tenacious, greyish-yellow, purulent exudate. The surrounding tissue showed unusually marked collateral edema with almost actual colliquation and considerable edema of the entire white matter, with marked swelling of the cortex. This was present throughout the left hemisphere, especially marked at the convexity. The abscess closely approached the posterior horn, which appeared considerably compressed but not invaded.

In the right occipital pole there was an abscess, measuring about 2 cm. in sagittal and 1.5 cm. in frontal diameters. All the abscesses were surrounded by a well-formed pyogenic membrane. The surrounding tissue also showed distinct colliquation necrosis and considerable edema throughout the white matter, with somewhat less marked swelling of the right hemisphere. Especially the left occipital area showed extreme bulging in all directions, obviously pressing upon the tentorium. Both lateral

ventricles contained a fair amount of clear spinal fluid.

The fourth ventricle, however, appeared almost entirely compressed, with only a few drops of spinal fluid. There was no spinal fluid in the basal cisternae, all of which appeared compressed by the decidedly swollen brain stem.

Smears taken from each abscess showed a considerable number of very thin, gram-negative, fusiform bacilli, some of which had a fairly typical whip shape, while others looked like almost entirely stretched spirochetes.

Examination of the lungs revealed chiefly purulent bronchiectasis, especially of the left lower lobe. Smears of pus from these areas revealed the same "whip-shaped" organisms.

STERILIZATION OF AIR IN CLOSED SPACES

The circumstances of modern warfare frequently necessitate the herding together of large numbers of people in air raid shelters. The control of air-borne infections in confined areas has therefore become a particularly urgent problem. A necessary preliminary to the scientific study of a problem of this nature is the establishment of experimental methods by which the various factors involved can be satisfactorily varied and controlled. For this purpose Edward, Elford, and the late Sir Patrick Laidlaw have described a method for the experimental investigation of aerosol systems formed by the atomization of suspensions of viruses into the atmosphere. They have performed observations on the physical properties of such systems and found an experimental approach to certain practical problems connected with air-borne virus infections.

In additional work also from the National Institute for Medical Research in London, Edward, Lush, and Bourdillon describe quantitative studies carried out early in 1940 on the killing effect of ultraviolet radiation on aerosols of three different viruses: influenza A, vaccinia, and herpes simplex.

Using the experimental methods now established as reliable for observations of this kind, these workers showed that rapid and effective sterilization of atmospheres containing atomized particles of influenza and vaccinia viruses, and probably also of herpes simplex virus, can be obtained by ultraviolet radiation of wavelength 2,537 angstroms.

An additional recent contribution to the subject by Challinor, of the University of Edinburgh, is concerned solely with the action of hypochlorite on the total bacterial content of the air of an occupied closed room under fixed conditions of ventilation. He obtained a substantial reduction in the bacterial content of the air of an empty room infected with Bacillus prodigiosus (or with Staphylococcus albus or a diphtheroid bacillus) by means of hypochlorites introduced into the air by atomization or by spraying from a flit gun. The relative humidity of the air has been previously shown to be a factor of great importance in the effectiveness of air disinfection. In Challinor's experiments likewise effective air-disinfection was not obtained at low relative humidities at temperatures ranging from 54 to 74 F. More accurate determination of the critical lower limit of relative humidity is desirable. Ultraviolet irradiation, propylene glycol vapor, as reported by Robertson and his colleagues, and now hypochlorite solution all appear to exert bactericidal and bacteriostatic effects on the atmosphere of closed air spaces. The experimental methods for controlling the factors involved are now available so that it remains only to choose what method or combination of methods can be most effectively employed in actual practice.—*J.A.M.A.*

OPPORTUNITY TO STUDY ARMY AND NAVY TREATMENT OF CASUALTIES

An opportunity to study Army and Navy treatment of casualties at two of the nation's leading military hospitals will be afforded physicians attending the annual convention of the Association of Military Surgeons of the United States in Philadelphia on October 21–23, inclusive.

Visits to the U.S. Naval Hospital, Philadelphia, and the U.S. Army Hospital at Valley Forge, where patients from war zones are under treatment, may be arranged for members of the Association during the three-day convention at the Bellevue-Stratford if they so wish.

The Army Hospital is near the site of George Washington's winter headquarters in the bitter season of 1777–1778. Its location accentuates the fact that the 1943 convention will be held in a city rich in both military and medical history.

Philadelphia rightly claims the distinction of being the birthplace of the nation and of American medicine. Here the Declaration of Independence was signed. Here also were founded the first medical school, the first hospital, and the first woman's medical college.

The College of Physicians was formed in Philadelphia during the same year that the Constitution of the United States was being written there. Two of the founders of the College of Physicians, Dr. Benjamin Rush, of Pennsylvania, and Dr. James McHenry, of Maryland, were among the signers of the Declaration of Independence.

The Navy's Bureau of Medicine and Surgery was established originally in Philadelphia.

Throughout the years Philadelphia has maintained its high place in medical circles and today boasts of six of the country's outstanding medical schools. They are: The University of Pennsylvania, Graduate School, Jefferson, Temple, Hahnemann, and the Woman's Medical College.

THE SIGNIFICANCE OF INCREASED MENSTRUAL BLEEDING IN WOMEN OVER FORTY

CLYDE L. RANDALL, M.D., Buffalo

IN 1926, the Council of the Medical Women's Federation (England)[1] appointed a committee to investigate the clinical aspects of the menopause. The conclusions of this group were based upon an analysis of the data collected from 1,200 questionnaires. The attention accorded this subject by others writing at the time is indicated by Fitzgibbon,[2] who, in 1932, was among the first to enumerate "suggested criteria of the normal menopause." However, neither the report of the Medical Women's Federation nor Fitzgibbon's study considered the significance of changes in the amount of the menstrual flow during the menopausal years.

Menorrhagia at the Menopause

The significance of increased menstrual bleeding at the time of the menopause has been discussed in a number of authoritative reviews of the subject. Keene,[3] Payne,[4] Norris,[5] Crossen and Crossen,[6] and Taylor and Millen[7] have all analyzed large series of cases and have presented valuable data concerning the cause of increased bleeding at the time of the menopause. In view of their studies the causes of menorrhagia among women in this age group will not be detailed in this report.

TABLE 1

TOTAL HISTORIES CONSIDERED

PATIENTS' AGE	GROUP	NO. of PATIENTS	
OVER 40	COMPLAINTS-OTHER THAN BLEEDING (Still having regular periods)	493	
OVER 40	COMPLAINT- MENSTRUAL EXCESS or IRREGULARITY	683	
TOTAL PATIENTS SEEN BEFORE MENOPAUSE			1176
OVER 40	MENOPAUSE after SURGERY or RADIATION	143	
OVER 40	AMENORRHEA of 6 to 12 MONTHS DURATION	23	
OVER 40	AMENORRHEA LONGER THAN 12 MONTHS	650	
TOTAL PATIENTS SEEN AFTER MENOPAUSE			816
Total number of histories of women over 40		1992	1992

The frequency of increased bleeding during the change of life is evident in the figures shown in Table 1. For this report the menstrual histories of 1,992 patients over 40 years of age have been analyzed, and of this number 1,176 were seen prior to cessation of their periods. Of the women seen before their menopause, 683, or 58 per cent, sought medical advice because of irregular or increased menstrual flow. Among the patients over 40, 816 were interviewed after their menopause and of this number 650 had noted no bleeding for longer than a year following spontaneous cessation of their periods.

TABLE 2

COMPLAINT: INCREASED MENSTRUAL BLEEDING
683 patients over 40: before the menopause

PROCEDURE ADVISED	NO. of PATIENTS	INCIDENCE
OFFICE MANAGEMENT	160	23.4 %
To HOSPITAL for SURGERY GROSSLY APPARENT PATHOLOGY	280	41 %
To HOSPITAL for DIAGNOSIS PATHOLOGY NOT GROSSLY APPARENT	243	35.6 %

Considering the 683 patients over 40 years of age who sought medical advice because of increased bleeding before the menopause (Table 2), it is apparent that only 160 patients, or 23.4 per cent, of the group were treated in the office. Among this group an easily removed cervical polyp or obviously functional menorrhagia were the most frequent causes for the increased bleeding. It will be noted that hospitalization was advised for 3 of every 4 patients among these 683 women. In 35.6 per cent there was apparently no gross pathology to account for the bleeding; therefore hospitalization and curettage were advised as a means of establishing a diagnosis.

TABLE 3

INCIDENCE of MALIGNANCY as the CAUSE of INCREASED BLEEDING
523 women before the menopause: hospitalization advised

CAUSE of BLEEDING	INCIDENCE
FIBROMYOMAS of UTERUS COINCIDENTAL MALIGNANCY - 1 CASE	48.4 %
ENDOMETRIAL HYPERPLASIA NO APPRECIABLE FIBROID	17.6 %
POLYPS NO COINCIDENTAL MALIGNANCY	11.2 %
MISCELLANEOUS - NON-MALIGNANT	17.4 %
MALIGNANCY IN UTERI WITHOUT FIBROIDS — 10.3%	5.3 %

Table 3 illustrates the almost universal observation that fibroids of the uterus are found in fully one-half the women with menorrhagia during the menopausal years. The incidence of malignancy, 5.3 per cent, is certainly high enough to emphasize the necessity of employing measures adequate to eliminate the possibility of carcinoma in every woman whose flow increases after 40 years of age.

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 4, 1943.

From the Department of Obstetrics and Gynecology of the Buffalo General Hospital and the University of Buffalo.

Malignancy at the Menopause

According to a recent statement of one of the largest life insurance companies,[8] 5 of every 200 women reaching the age of 40 now die of carcinoma of the uterus. However, a single figure may not satisfactorily express the incidence of malignancy as the cause of increased menstrual flowing in women over 40. In Table 3, it may be noted that when patients with grossly appreciable fibroids are excluded from consideration, malignancy of the uterus was found in 10.3 per cent of women complaining of increased bleeding before the menopause. Since this figure included cases in which the diagnosis of malignancy was evident grossly, it does not represent the incidence of suspected or unsuspected malignancy proved only on curettage. An effort was made to determine the incidence of early carcinoma of the fundus when women experiencing only increased bleeding are curetted at the time of the menopause. In Table 4, it will be noted that adenocarcinoma of the uterus was found in 9.1 per cent of 165 women with a grossly normal uterus curetted on account of menorrhagia at the menopause.

TABLE 4

INCIDENCE of MALIGNANCY
165 women: Complaint - increased bleeding before menopause
Apparently normal uterus - curetted for diagnosis

ADENOCARCINOMA	15 CASES
INCIDENCE	9.1 %

Irregular bleeding at the menopause is difficult to interpret because cessation of the periods usually involves some irregularity of the flow. During the past fifteen years Novak[9] has repeatedly clarified the symptomatology of the menopause, always with emphasis on the necessity of eliminating malignancy of the uterus whenever there is an increased menstrual flow during the menopausal years. King,[10] Pemberton,[11] Dougal,[12] and others have likewise stressed the importance of a diagnostic curettage whenever increased menstrual flowing occurs in women over 40 years of age. Obviously it is desirable to recognize criteria by which the changes in menstrual flow incidental to the menopause may be distinguished from abnormal bleeding that requires a careful search for early malignancy.

Criteria of Normal Bleeding at the Menopause

The literature includes many considerations of increased bleeding at the time of the menopause in which it is either stated or assumed that the normal change involves either a gradual or an abrupt cessation of the menstrual flow. Abnormal bleeding has been frequently discussed, but there has been scant reference to the reliability of the generally accepted norm. Moreover, the literature suggests no universal agreement as to when an increase in menstrual flow at the time of the menopause indicates a search for pathology. Fitzgibbon, for instance, speaks of the patient whose history he presents as exhibiting menorrhagia considered "as usual associated with the approach of the menopause." Frequently quoted is Drips'[13] employment of Zondek's classification of menopausal disturbances, in which so-called "Period 1" is designated as the months in which more frequent or excessive menstruation occurs. Many clinicians are prone to regard the statements of Novak, Whitehouse,[14] and others (referring to the fact that women with an increased flow at the menopause have less severe flushes and emotional instability) as an acceptance of an increased flow as a part of the normal menopause.

Several years ago a search of the literature failed to reveal a report in which statistics had been presented to illustrate the characteristics of menstruation during normal cessation of the flow. There seemed to be no data supporting the frequently expressed opinion that a majority of women experience no increased flow preceding final cessation of their periods. Since that time, in every suitable postmenopausal patient contacted in an office practice, a careful history has been taken with respect to the amount and regularity of the menstrual flow during the menopausal years. In this manner, data have been collected on the relative frequency of increased bleeding as compared with the occurrence of a gradual or abrupt cessation of the flow at the time of the menopause. To insure uniformity of interpretation, all the histories considered were taken by one individual.

TABLE 5

INCIDENCE of MENORRHAGIA at MENOPAUSE

GROUP	NO. of PATIENTS		INCIDENCE	
CESSATION after SURGERY or RADIUM	143			
CESSATION within 6 to 12 MONTHS	23			
INACCURATE DATA REGARDING MENORRHAGIA	106			
TOTAL HISTORIES DISCARDED		272		
CESSATION LONGER THAN ONE YEAR No menorrhagia prior to cessation	440		80.9%	
(Complaint postmenopausal bleeding)		(110)		(67.1%)
*No postmenopausal bleeding		330		86.9%*
MENORRHAGIA PRIOR to CESSATION	104		19.1%	
(Complaint: postmenopausal bleeding)		(54)		(32.9%)
*No postmenopausal bleeding		50		13.1%*
TOTAL NUMBER POSTMENOPAUSAL CASES	816	816	100%	

Data were recorded on a total of 816 patients past the menopause, but of this number the histories of 272 have been disregarded for the reasons indicated in Table 5. Among 544 women

interviewed a year or more after spontaneous cessation of their periods, 440, or 80.9 per cent, gave a history of gradual or abrupt cessation of bleeding with no occurrence of menorrhagia. This figure suggests that 19 women of every 100 going through the menopause experience increased bleeding prior to cessation of their flow.

However, among women over 40 who consult a gynecologist we might expect to find a higher incidence of menorrhagia than occurs among the population at large. For that reason we believe a more reliable figure has been obtained from the histories of a somewhat smaller group of women. Three hundred and eighty, or 70 per cent, of the women who came to the office after their menopause came with no complaint referable to bleeding.

In most instances they came because of relaxation, prolapse, symptoms referable to postmenopausal atrophic changes, breast lesions, and the like. Of that group, only 50, or 13 per cent, had experienced menorrhagia prior to cessation of their periods. This figure, 13 women of every 100, we present as an estimate of the incidence of increased flowing at the time of the menopause.

In the records of the Buffalo General Hospital we have found nothing to suggest a significantly high incidence of adenocarcinoma of the uterus among women whose menstruation continues past the forty-ninth year. In fact, the occurrence of adenocarcinoma of the fundus was frequently noted among younger women. We should be inclined to agree with Taylor's observation[7] that the woman who menstruates regularly in her fifties is less likely to have a malignancy than the woman who experiences postmenstrual flowing in her forties.

Relation of Menorrhagia at Menopause to Postmenopausal Bleeding

It is not the purpose of this report to consider the significance of postmenopausal bleeding. However, the possible significance of one factor in the recurrence of uterine bleeding after the menopause should not be overlooked. We had suspected that the endometrial hyperplasia frequently associated with menorrhagia at the menopause might persist asymptomatically in a uterus destined to bleed again with the postmenopausal development of an adenocarcinoma in the fundus.

Since it is practically impossible to say when the individual past the menopause is beyond the probability of further uterine pathology, only an estimate can be made, in a series of this size, as to the predisposition of a group to develop postmenopausal bleeding. However, considering the data in Table 5, it is interesting that among 164 women noting a recurrence of vaginal bleeding one or more years after cessation of their periods, 54, or 32.9 per cent, gave a history of heavier flowing during their menopause. In this group, the incidence of menorrhagia preceding cessation of the flow was nearly three times greater than that experienced by the women who came in with no history of postmenopausal bleeding.

This figure would suggest that the woman who apparently spontaneously recovers after menorrhagia at the menopause runs a much greater chance of developing postmenopausal bleeding than the woman who experienced an abrupt or gradual cessation of her flow. If menorrhagia at the menopause predisposes the individual woman to a higher incidence of postmenopausal bleeding, women who experience increased flowing prior to cessation of their periods might be expected to develop a higher incidence of malignancy of the fundus during their postmenopausal years. However, as indicated in Table 6, we found no evidence that the incidence of carcinoma of the uterus was higher among women who had noted menorrhagia at the menopause than among women who had experienced an abrupt or gradual cessation of their flow. Undoubtedly we should consider menorrhagia prior to the menopause as one problem and postmenopausal bleeding as another, but the possibility of the former predisposing the individual to the latter might well be kept in mind.

TABLE 6

INCIDENCE of MALIGNANCY as the CAUSE of POSTMENOPAUSAL BLEEDING
164 women after the menopause

TYPE of MENOPAUSE	NO. of WOMEN	INCIDENCE of MALIGNANCY
MENORRHAGIA PRIOR to CESSATION	54	39.3 %
GRADUAL or ABRUPT CESSATION	110	39.3 %

The figures shown in Table 6 are not in accord with data usually quoted on postmenopausal bleeding. Norris[5] found the reappearance of vaginal bleeding after a year or more of amenorrhea to be due to malignancy in 52.9 per cent of 1,797 cases. Similarly, among 2,000 patients admitted to the hospital on account of postmenopausal bleeding, Keene[3] found the incidence of carcinoma to be 61.4 per cent. However, it should be noted that both Norris and Keene were reporting on the incidence of malignancy as the cause for postmenopausal bleeding among patients entering a hospital for diagnosis and/or treatment.

It is of course possible that carcinoma is not

responsible for the occurrence of postmenopausal bleeding in as high a proportion of the women seen by the practitioner as has been indicated by reports on the incidence of malignancy among patients admitted for hospital care. Among the patients seen in office practice, postmenopausal bleeding may be due to senile vaginitis, vaginal erosion secondary to prolapse, easily removed polyps, or to the excessive use of estrogenic therapy for menopausal symptoms. Such causes for postmenopausal bleeding do not appear frequently among patients referred for hospital care, and their inclusion probably accounts for the relatively low incidence of malignancy noted in Table 6. Our data indicated that 4 of every 10 women who consult the doctor on account of a recurrence of vaginal bleeding a year or more after the menopause have a malignant tumor. For that reason alone—particularly if menorrhagia at the menopause predisposes the individual to postmenopausal bleeding—our measures to control menorrhagia prior to the menopause might well take into account the desirability of insuring against the occurrence of later pathology in the uterus.

Discussion

It has been evident for thirty years that an early diagnosis and the prompt institution of adequate treatment provide the only means of saving the lives of women with a malignancy beginning in the cervix or uterine fundus. Professional groups and lay audiences are repeatedly warned of the possible seriousness of irregular or increased vaginal bleeding in women over 40 years of age.

Yet personal experience too often modifies the individual's apprehension regarding excessive bleeding at this time of life. Not infrequently a woman experiencing menorrhagia at the menopause recovers after the annoyance of a few prolonged or profuse periods. Thereafter she is convinced of the harmlessness of the heavy or irregular flowing she experienced at the change of life, and in this way a doctrine of complacency may be perpetuated from one generation to the next. It is this very complacency which constitutes our major problem.

We recognize that only a small proportion of the individuals with suggestive bleeding are destined to develop fatal pathology. To enlist the interest of the fortunate majority we must frequently remind them that the unfortunate minority exists unrecognized among their number. To convince ourselves of the wisdom of this policy it is well occasionally to question the significance of menorrhagia at the menopause. However, whenever we do so, we find the incidence of uterine malignancy as a cause of increased bleeding a threat to each woman in this age group until adequate measures to eliminate the presence of carcinoma have been employed by her physician.

Summary

According to the data presented, at the time of the menopause 87 per cent of women experience a gradual or abrupt cessation of their menstrual flow, and in only 13 per cent the flow is increased prior to cessation of the periods.

Fibroids of the uterus were responsible for one-half the instances of increased bleeding in women over 40.

Malignancy of the uterus was the cause of increased bleeding prior to the menopause in 5.3 per cent of patients.

When uteri not containing fibroids were curetted in order to explain menorrhagia occurring before the menopause, the incidence of adenocarcinoma in the fundus was 9.1 per cent.

It is suggested that women who experienced menorrhagia prior to the cessation of their periods are more likely to develop postmenopausal bleeding than women whose menopause is characterized by an abrupt or gradual cessation in the menstrual flow. The significance of this observation is suggested by the incidence of malignancy as a cause for postmenopausal bleeding.

Conclusion

Data are offered in support of a frequently emphasized dictum—whenever women over 40 develop increased menstrual bleeding, no other diagnosis should be accepted until the possibility of a malignancy in the uterus has been eliminated.*

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* Presentation of these data has been made possible by Dr. James E. King, of Buffalo. We gratefully acknowledge his permission to use the histories given by private patients as the basis for this report.

Therapeutics

CONFERENCES ON THERAPY

THESE are stenographic reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments and institutions. The questions and discussions involve participation by members of the staff of the college and hospital, students, and visitors. The next report will appear in the October 1 issue and will concern "Treatment of Poisoning by the Barbiturates."

Carbon Monoxide Poisoning

DR. EUGENE F. DUBOIS: Carbon monoxide poisoning is not the invention of the gas companies and the automobile manufacturers. It probably started as soon as man began making fires in closed spaces. It is with us frequently in this city. I want to emphasize the fact that it does not always come with the label, that it does not always come with the smell of illuminating gas, and that many cases are undiagnosed.

We saw carbon monoxide poisoning very frequently at Bellevue Hospital. It still is frequently seen there, I understand, but not so frequently as it used to be. It was a common sight to see on the ward the men from the gas company working most efficiently as a team on the patients who were brought in by the ambulance or the gas company as victims of carbon monoxide poisoning.

Today Dr. Milton Helpern is going to discuss the occurrence and pathology of carbon monoxide poisoning.

DR. MILTON HELPERN: As Dr. DuBois has indicated, carbon monoxide poisoning is one of the most ancient forms of poisoning and dates back to the first use of fire. The incomplete combustion of any type of fuel—gaseous, liquid, or solid—is accompanied by the evolution of carbon monoxide, and proper provision for its escape during fuel combustion is most important in preventing asphyxial poisoning.

In actual experience, most cases of carbon monoxide poisoning result from the inhalation of uncombusted illuminating gas which contains a high percentage of carbon monoxide. In such cases, it is even customary to certify the cause of death as illuminating gas poisoning. As already mentioned, carbon monoxide is generated during any conflagration and during the incomplete combustion of any type of fuel, including natural gas, which does not contain carbon monoxide as an ingredient. Formerly, when heating appliances were not so efficiently constructed as they are now, we saw many cases of carbon monoxide poisoning which occurred when the gas or other fuel was incompletely combusted and the liberated carbon monoxide was allowed to accumulate in a relatively confined space.

Another important source of carbon monoxide is the exhaust gas of the internal combustion automobile engine, which contains a very high percentage—about 7 per cent—of carbon monoxide. If this automobile exhaust gas is inhaled for a short length of time—for example, in a small closed garage—fatal poisoning will occur rapidly.

I should like to point out the incidence of fatal carbon monoxide poisoning in New York City by means of the statistical tables in the 1939 "Annual Report of the Office of the Chief Medical Examiner." In 1939, there were 1,210 suicides, 445 of which were by inhalation of illuminating gas and 31 by inhalation of motor exhaust fumes. From year to year the suicide total is about the same. The total of 476 deaths from carbon monoxide poisoning represents a large per cent of all the fatal suicidal poisonings encountered.

In the table of accidental deaths by poisoning, which includes a certain number of cases in which the circumstances could not be determined and which were probably not all accidental, there was a total of 971 deaths, including 440 deaths from acute and chronic alcoholism and 153 deaths during anesthesia. One hundred and seventy-two of these were carbon monoxide poisonings resulting from the inhalation of illuminating gas and 47 from the inhalation of carbon monoxide, the origin of which was other than illuminating gas. In the latter group, the source of the gas was automobile exhaust fumes or "coal gas" escaping from defective furnace flues. The total number of accidental and undetermined deaths from carbon monoxide poisoning was 216 in 1939.

The incidence of accidental carbon monoxide poisonings has dropped considerably. Fifteen years ago, there were more than 800 fatal accidental poisonings in a year. Most of these resulted from the use of defective gas fixtures.

Since gas lighting appliances in the home have been largely replaced by those using electricity, there has been a tremendous diminution in the number of potentially dangerous gas outlets and fixtures. Gas stoves and heating appliances are also tested much more rigidly before they are allowed to be used by the public. Most of the accidental carbon monoxide poisonings we now see occur when a senile arteriosclerotic individual or an intoxicated person puts a pot on the stove, turns on the gas, but forgets to light it. Occasionally a person trips over and separates the rubber connecting hose between the gas outlet on the wall and a portable gas stove or burner. Then there are many instances in which a connecting rubber gas hose is old or brittle or otherwise defective so that sufficient gas leaks from it to cause asphyxiation. One should remember that the incidence of accidental carbon monoxide asphyxiation is seasonal; it occurs most frequently during the winter months when fuel consumption is heaviest.

One sometimes hears a curious and erroneous explanation of the cause of fatalities when persons are found dead of carbon monoxide poisoning in closed, unventilated rooms heated by open gas burners. The newspapers occasionally carry a story that the burner extinguished itself after the oxygen in the room was all used up, after which the escaping gas poisoned the occupants. Obviously, such an explanation is fallacious. The oxygen supply is not used up in that way. The occupant is poisoned by the carbon monoxide escaping from the burner while it is lighted because of faulty, incomplete combustion of the gas, or because the gas was turned on and the burner not lighted in the first place.

I should like also to emphasize a fact that Dr. DuBois has already mentioned—that not all cases of carbon monoxide poisoning are labeled as such when they first come under observation. It is true that in the majority of cases the diagnosis is very simple. The scene makes the case an obvious one. The victim is found dead or unconscious in an atmosphere of carbon monoxide. There may have been careful, detailed preparations for suicide. The cracks around the doors and windows and the keyholes are sealed by being covered over or stuffed with paper or rags; the victim is unconscious or dead on the floor in front of the stove with all the petcocks turned on and blowing gas. Frequently there is a suicide note.

It is important to remember that there are cases, usually accidental, in which the scene is misleading because the source of the carbon monoxide is not apparent. In such cases, the victim may be found semistuporous or unconscious and brought to the hospital with an erroneous diagnosis. Mild cases of poisoning with misleading symptoms of headache, nausea, and vomiting are misdiagnosed as gastroenteritis or food poisoning, especially when several persons become ill with such symptoms after having partaken of a meal. They may recover spontaneously and be discharged from the hospital without a correct diagnosis of carbon monoxide poisoning ever having been made. In other cases the patient is admitted to the hospital in coma and, because a source of carbon monoxide or its presence was not detected or suspected at the scene where the individual was found, the correct diagnosis is not made or even considered. The patient dies in coma after several hours or days. If the victim has survived several hours, much of the carbon monoxide will have been eliminated and an autopsy may reveal little to prove carbon monoxide poisoning. If blood was not taken for qualitative and quantitative determinations of its carbon monoxide content, the diagnosis will not be made. If such a patient survives for almost twenty-four hours, the gas will have been completely eliminated and brain lesion may not have had sufficient time to develop, so that the case cannot be diagnosed, not even at autopsy. Fortunately, in patients who survive more than twenty-four hours in coma, the postmortem findings in the brain are fairly characteristic.

In fatal cases, the pathologic lesions vary with the type of case. When asphyxiation by carbon monoxide occurs rapidly from the inhalation of a high concentration of the gas, as in the case of suicides who turn on several gas petcocks in a closed room, the necropsy will reveal the characteristic cherry-red carboxyhemoglobin coloration of the skin, blood, and congested organs.

The pinkish-red color of the suggillations immediately suggests the diagnosis even before the body is opened. In such cases the blood will give strongly positive qualitative tests for carbon monoxide and the quantitative tests will reveal a high percentage of saturation of the blood with carbon monoxide. The postmortem diagnosis in cases of acute, fatal carbon monoxide asphyxiation is obvious to the experienced observer.

Kodachrome transparencies will illustrate the characteristic cherry-red color of the postmortem suggillations in a case of acute carbon monoxide poisoning in which the individual is found dead in the atmosphere of the gas. As the blood gravitates into the vessels of the dependent portions of the body after death, the cherry-red color becomes quite intense. In a similar colored photograph, the body of a man who died of acute alcoholism shows the ordinary purplish-blue postmortem lividity.

The situations in carbon monoxide poisoning

are sometimes very strange, as illustrated by the following case.

The deceased, a middle-aged white man, went down into the basement of his house to commit suicide. He tried to cut his throat, but not very effectively. There were multiple hesitation cuts on the side of the neck which only penetrated the skin. After that he attempted to stab himself several times through the frontal portion of the scalp, but the thickness and hardness of his skull stopped the knife. In disgust, he removed the belt from his trousers, looped it around his neck, and fastened the other end to an overhead pipe in order to hang himself; but the weight of his body caused the belt to snap and he came crashing down. In falling, his head struck and broke off a gas jet protruding from the wall; the escaping gas caused his death. The carbon monoxide saturation of his blood was 70 per cent, and the intense cherry-red postmortem lividity was striking. It was a case of incidental, if not accidental, carbon monoxide poisoning complicating several unsuccessful attempts at suicide by other methods.

There are occasional cases in which the victim is also found dead, but in which the asphyxiation was more prolonged in the atmosphere of the gas. In such cases, in addition to the cherry-red carboxyhemoglobin coloration of the congested organs, one may find numerous fine petechial hemorrhages throughout the white matter of the brain. These petechial hemorrhages are not seen in the rapidly fatal asphyxiations, which show only the characteristic cherry-red or rose-colored lividity.

If the individual survives and is removed from the atmosphere of the gas into the fresh air, the carbon monoxide is eliminated fairly rapidly from the blood into the expired air and the blood returns to normal. Unless a sample of blood is taken within a very short time of the removal of the victim from the atmosphere of the gas, the tests for carbon monoxide will not reveal the highest per cent of carboxyhemoglobin and, if too long a time elapses before the blood is withdrawn, no carbon monoxide may be found. In twenty-four hours, the asphyxiated person will have eliminated all of the gas. The gas is eliminated more rapidly when resuscitation measures have been carried out.

Bodies of persons who succumb after twenty-four hours will no longer show the cherry-red coloration. The carboxyhemoglobin will have already disappeared, and the color will not differ from that of an ordinary dead body.

But there is another lesion which appears just about this time, after about twenty-four hours or more of survival in coma. In such delayed deaths, one finds in the brain characteristic bilateral symmetric softening or anemic necrosis of the globus pallidus, a lesion which was called attention to by Kolisko a long time ago. As the period of survival in coma after asphyxiation increases, this lesion becomes more conspicuous. The anterior third or half of the globus pallidus appears crumbly in texture and is sequestrated from the surrounding tissue. The consistency and appearance, except for the color, is very much like that of deviled egg. In most cases, the necrotic tissue is anemic in appearance; in some cases, it may be slightly infiltrated with blood. There may be—but in most cases there are not—associated petechiae in the cerebral white matter.

I have several specimens of brain which demonstrate the symmetric anemic necrosis of the globus pallidus in delayed deaths from carbon monoxide poisoning. Despite the statement in many textbooks, the occurrence of petechial hemorrhages in the cerebral white matter in addition to the anemic softening of the globus pallidus in delayed deaths is infrequent. Petechial hemorrhages in the white matter of the brain have already been mentioned in cases of prolonged acute, fatal asphyxiation in the atmosphere of carbon monoxide.

In delayed deaths and in some prolonged acute fatal cases, one occasionally finds lesions in other organs in addition to the brain lesions. There may be hemorrhages in the heart muscle, but these are not very commonly encountered. Subendocardial hemorrhages and mural thromboses may occur in the ventricles. Scattered trophic blisters or bullae may develop in the skin. The appearance of bullae may be a useful clue in the diagnosis of an obscure case of unconsciousness caused by carbon monoxide asphyxiation in which there are also hyperactive and abnormal deep reflexes suggestive of bilateral pyramidal tract disease. The possibility of carbon monoxide poisoning should always be considered in such a case.

Aside from the lesions in the brain, in the heart, and in the skin, there are no other characteristic lesions in delayed deaths. Pulmonary edema and a hypostatic bronchopneumonia are the immediate cause of death in patients who survive several days. I should like to emphasize the fact that the only consistent finding in delayed deaths from carbon monoxide poisoning is the bilateral anemic necrosis of the globus pallidus, which probably has its inception during the period of anoxemia occurring at the time of the asphyxiation and during the initial period of unconsciousness when the concentration of carbon monoxide in the blood is greatest. The lesion is not altogether restricted to carbon monoxide poisoning. It occurs rarely in other conditions.

We have seen it twice now in cases of severe barbiturate poisoning, when the patient has remained unconscious for a long period of time. A third such case has recently been reported in the literature.

DR. DUBOIS: Dr. Cattell will discuss the pharmacology and treatment of carbon monoxide poisoning.

DR. MCKEEN CATTELL: From a physiologic standpoint carbon monoxide is a relatively inert gas. It owes its toxic properties to the fact that it combines with hemoglobin and makes it unavailable for the transport of oxygen. This important discovery goes back to the middle of the last century and Claude Bernard. Every symptom of carbon monoxide poisoning is accounted for by the asphyxia thus produced.

In 1932 Fenn and Cobb reported that in intact frog muscle the metabolism is increased between two and three times when air is replaced by 76 per cent carbon monoxide plus 21 per cent oxygen. In a second paper they extended these observations to other tissues of both cold- and warm-blooded animals and showed that the increased metabolism involved the actual burning of carbon monoxide to carbon dioxide by the consumption of oxygen. This occurs to an appreciable extent only in skeletal and cardiac muscle.

It is hardly probable that oxidation plays an appreciable role in the elimination of carbon monoxide in the intact animal or man, since by comparison the tissue concentration is very low indeed.

The circumstances that govern the combination of oxygen and carbon monoxide with hemoglobin form the basis for the treatment of carbon monoxide poisoning. It was shown by Haldane that the relative amounts of oxyhemoglobin and carboxyhemoglobin existing in the blood are proportional to the partial pressure of each gas. Thus, a reversible equilibrium exists which conforms to the laws of mass action. However, since the affinity of carbon monoxide for hemoglobin is much greater than that of oxygen, comparatively small amounts result in a significant percentage of carboxyhemoglobin. A number of investigators have studied the relative combining power for various concentrations of the gases. Carbon monoxide in a concentration of 0.1 per cent in air (20.9 per cent oxygen) results in equal parts of oxyhemoglobin and carboxyhemoglobin. From such experiments it can be calculated that the affinity of carbon monoxide for hemoglobin is 210 times that of oxygen. It follows that if the amount of oxygen in the inspired air is doubled in the presence of the same amount of carbon monoxide, the percentage of carboxyhemoglobin will be 25. This points the way to the most important aspect of treatment —the administration of oxygen in high concentrations. This is done through a face mask with artificial respiration if necessary.

There is another point that should not be forgotten in connection with oxygen therapy—its value in preventing asphyxia. No time should be lost in improving the oxygen supply to the tissues, and by giving oxygen, an appreciable extra amount over that obtaining with atmospheric air is transported in combination with hemoglobin. Furthermore, the quantity dissolved in the plasma is also increased.

Dr. Maurer in Dr. Drinker's laboratory has studied the effect of carbon monoxide poisoning on the production of lymph in dogs. Using 0.5 per cent carbon monoxide he showed that the lymph production begins to increase when the average oxygen saturation of the blood is reduced to 61 per cent, which conforms closely to the results obtained by the author during the respiration of air that was deficient in oxygen. The average increase of flow was two and one-half times after thirty minutes' exposure to the carbon monoxide which resulted in a high concentration of carboxyhemoglobin, averaging 87 per cent. Treatment with 100 per cent oxygen restored the blood gases to normal and resulted in decrease in lymph production.

These observations remind us of the story in secondary shock, and it would seem that capillary damage should result in the syndrome of secondary shock. As a matter of fact, evidence of cerebral and pulmonary edema has been reported. I should like to ask those who have seen cases of carbon monoxide poisoning whether or not they exhibit evidence of peripheral vascular failure.

Of all the conditions in which carbon dioxide is administered there is none having better indications than carbon monoxide poisoning, for not only does it act as a respiratory stimulus but it also promotes the dissociation of carboxyhemoglobin and oxyhemoglobin. In the early stages of poisoning hyperpnea may be present, but the later stages are always attended by respiratory depression. Henderson, who introduced the carbon dioxide treatment, believed that the carbon dioxide concentration was depleted because of the hyperpnea occurring in the initial stages and because of a depressed metabolism. That the carbon dioxide concentration should be low under these circumstances hardly makes sense, and the point has been re-examined by Dill and his associates at the Fatigue Laboratory at Cambridge. In a recent issue of the *American Journal of Physiology* they describe the circulatory and respiratory responses to carbon monoxide poisoning in dogs and man. Carbon monoxide was administered slowly until carboxyhemoglobin reached 40 to 50 per cent.

Plasma carbon dioxide first fell and then increased with a shift of the pH toward the acid side. In the face of this no hyperpnea occurred, so it was concluded that carbon monoxide, or rather the anoxia, results in a depression of the respiratory center.

At first sight the depression of the center caused by carbon monoxide asphyxia seems to *run counter to the well-known influence of oxygen* lack in stimulating the respiration. However, this contradiction is resolved when we take into consideration the experiments of Schmidt and Comroe, showing that respiratory stimulation by oxygen lack is mediated through the carotid sinus. In carbon monoxide poisoning the oxygen dissolved in the plasma of the arterial blood is not diminished, and since this is the oxygen to which the carotid sinus responds, the carotid sinus reflex is not brought into action, and thus the direct depressant effect of asphyxia on the respiratory center is unmasked.

This evidence does not speak against the use of carbon dioxide in carbon monoxide poisoning; on the contrary, the depressed center may be stimulated by the higher concentration and thus the elimination of carbon monoxide is promoted. Moreover, the increased carbon dioxide facilitates the release of oxygen to the tissues and the dissociation of carboxyhemoglobin.

For many years 5 per cent carbon dioxide was employed, but on the basis of Dr. Drinker's studies 7 per cent carbon dioxide in 93 per cent oxygen is now generally recommended.

Briefly, to summarize the steps that are useful in the treatment, the first thing to think of is to remove the patient to fresh air, and the second is to institute artificial respiration when necessary, while at the same time carbon dioxide and oxygen should be administered.

It has been shown that by these means the elimination of carbon monoxide will be so hastened that it is practically all lost from the body within twenty minutes to half an hour, whereas without them it would take approximately two hours to accomplish the same thing. The fourth consideration is the application of measures to combat shock.

With regard to drug therapy I need to say little. That may be left to the informal discussion, but in the light of the condition with which we are dealing it is obvious that drug therapy has very little place.

In the urge to do something, a variety of stimulants are commonly injected by the hypodermic route, and these include strychnine, caffeine, camphorated oil, atropine, digitalis, epinephrine, pituitary extract, alpha-lobeline, methylene blue, and many others. Of this list I think caffeine is perhaps the only one that deserves serious consideration.

Caffeine has some reputation as a respiratory stimulant, but we all know that it is none too effective in conditions of respiratory depression. However, it appears to be relatively harmless and in moderate doses may be helpful. In this condition it is administered intravenously.

DR. DUBOIS: Dr. Helpern, have you some more remarks you would like to make?

DR. HELPERN: There is another hazard that arises when a person commits suicide by inhaling illuminating gas. The gas when mixed with air in proper concentration is highly explosive. There have been a number of cases recently in which destructive explosions have been set off in the gas-filled premises, the gas having been liberated from the kitchen range by a person intent on suicide. In such cases a lethal amount of gas has been inhaled by the victim before the explosive concentration of the gas is attained. The explosion occurs when the mixture of gas and air is ignited either by an electric spark or by a pilot light which has been left burning on the stove or under the refrigerator. At times it is difficult if not impossible to determine the source of ignition. In any case a destructive explosion of illuminating gas occurs, with considerable damage to the premises. The body of the deceased may be scorched by the blast. In all such cases the cause of death was carbon monoxide poisoning which was readily proved by the high concentration of carbon monoxide in the blood of the deceased. Despite the obvious cause of death in such cases in which destructive explosions of the gas have subsequently occurred, unwarranted law suits for damages or for accidental death benefits have been instituted by the relatives of the deceased, who refuse to accept the verdict of suicide clearly indicated by investigation of the circumstances and by the cause of death. In one interesting case in which an explosion occurred after a successful gas suicide attempt, the force of the explosion was so great that it blew out all the walls in the apartment and piled up most of the furniture on the outdoor terrace. The place was a shambles. The kitchen stove, which was the source of the gas, was blown away and demolished so that it was impossible at first to know how many petcocks were turned on. This was subsequently determined by the position of the flanges in the feed pipe of the stove, which indicated that four burners of the stove had been turned on full. A police detective painstakingly combed through the rubble in the wrecked apartment and found the many small fragments of a note written by the deceased which clinched the case as a suicide. The explosion of illuminating gas that has

permeated throughout an entire lower floor of a building not of steel construction might very well result in the collapse of the building and in the death and injury of many of the occupants.

DR. DUBOIS: The session is now open for discussion. I am sure Dr. Helpern and Dr. Cattell will be glad to answer questions.

DR. OSCAR BODANSKY: To what extent are clinical symptoms obtained by people who work in atmospheres where there is carbon monoxide in nonlethal doses? I mean, for example, people at busy traffic corners or workers in a garage.

DR. CATTELL: There have been reports indicating the possible importance of chronic poisoning; I have in mind particularly the study of Beck, who claims that the continued inhalation of very small amounts of carbon monoxide results in definite lesions in the central nervous system, with disturbance of function.

There is some doubt regarding the significance of these studies. By their nature, adequate controls are difficult to get and there is some question as to whether the symptoms are truly representative of carbon monoxide poisoning. Perhaps Dr. Helpern will say something about that.

DR. HELPERN: Most healthy persons with less than 18 or 20 per cent carbon monoxide saturation of the blood are symptom-free or present only mild symptoms, depending upon whether they are at rest or exercising. Headache is usually the first symptom complained of. Dangerous concentrations of carbon monoxide may accumulate rapidly in small unventilated private garages, since automobile exhaust contains about 7 per cent of carbon monoxide. In large public garages, the hazard of fatal acute poisoning does not exist, although many such garages show a carbon monoxide concentration of more than 0.01 per cent or 1 part in 10,000. Such a concentration of carbon monoxide might cause mild symptoms of intoxication, such as headache, if a worker were continuously exposed to it for several hours. Most of the reports dealing with the concentration of carbon monoxide in street air, especially at busy traffic intersections, give values far below 0.01 per cent, although concentrations as high as 0.04 per cent have been reported for brief intervals. The amount of carbon monoxide in street air is not considered a health hazard. The traffic policeman is probably the only one who is exposed sufficiently long to concentrations of carbon monoxide in street air which might give rise to symptoms.

The question of chronic carbon monoxide poisoning, a condition resulting from the continued or repeated inhalation of small amounts of carbon monoxide, is a puzzling one, and the great variety of conditions attributed to chronic carbon monoxide poisoning include not only disorders of the central nervous system and the organs of special sense, but also of the circulatory system, the digestive system, and, in fact, of almost every system in the body. There is sufficient pathologic evidence for us to attribute certain disabilities, especially those referable to the central nervous system, to the delayed effect of an acute carbon monoxide asphyxiation in which a sufficient amount of gas was inhaled at one time to produce a high percentage of carbon monoxide saturation of the blood with resultant anoxemia and irreversible damage to the tissues. Although nonfatal severe acute asphyxiations by carbon monoxide are fairly common, sequelae are comparatively rare.

It is important not to confuse the sequelae of an acute nonfatal carbon monoxide asphyxiation with what has been designated as chronic carbon monoxide poisoning supposedly resulting from the repeated inhalation of small amounts of the gas. With this caution in mind, a critical examination of cases of so-called chronic carbon monoxide poisoning does not reveal much satisfactory evidence for the existence of such a condition, or that various permanent or transitory neurologic and circulatory disorders are an expression of it or result from it. There is little or no objective evidence, for example, of quantitative measurements of the concentration of the carbon monoxide allegedly inhaled, or measurements of the percentage saturation of carbon monoxide in the blood of the victim during the time of supposed exposure to the gas. The difficulty and impossibility of obtaining such information months or years later are appreciated. In many of the cases of chronic carbon monoxide poisoning reported in the literature, the symptoms and signs described could just as well have resulted from natural disease processes or from other causes.

I have in mind the case of a middle-aged man who was suffering from partial blindness occasioned by retrobulbar neuritis. Several years before this man had worked in a large garage. There were no complaints or episodes of asphyxiation or unconsciousness at the time of his employment. Years later during an admission to one hospital because of his failing vision, a pansinusitis was diagnosed, and arsenic was recovered from his urine. At the time of his discharge from the hospital the optic neuritis was considered to have been caused either by arsenic or by the sinusitis. Carbon monoxide as an etiologic factor did not enter into the picture at that time, but only after hospitalization in another institution was the history obtained that he had been employed in the large garage a long time

before. There was no evidence to show that any dangerous concentration of carbon monoxide ever existed in the garage when the patient worked there or that he ever had any carbon monoxide in his blood at that time. Despite the fact that arsenic was found in his system and that he had a well-proved case of pansinusitis either one of which conditions could have caused an optic neuritis and partial blindness, the mere fact that he had once worked in a garage was sufficient to permit testimony by a medical expert that the patient's visual disturbance was a manifestation of chronic carbon monoxide poisoning and, moreover, that it could not have been caused by arsenic poisoning or by a pansinusitis.

It is true that persons working in poorly ventilated garages and traffic policeman assigned to heavily traveled streets may accumulate concentrations of carbon monoxide in their blood as high as 20 per cent or more after prolonged exposure and that they may develop symptoms of malaise, but there is no satisfactory proof that permanent harm results in such cases.

DR. CATTELL: It is difficult to see how, on the basis of simple asphyxia, a concentration of carboxyhemoglobin as low as 20 per cent could cause damage because of the large factor of safety provided through various circulatory readjustments.

DR. DUBOIS: Unless there are other factors coming in, such as a combination of carbon monoxide with anemia or high altitude. In Denver I suppose 20 per cent saturation with carbon monoxide would be very much more serious than it would be here in New York.

Then the question of heart disease or exertion is important. There is an interesting chart, comparing the condition in simple anemia and carbon monoxide poisoning, in Dr. Drinker's book on carbon monoxide asphyxia. It shows a man with a considerable saturation of carbon monoxide in his blood, and with an oxygen-combining capacity equal to that of a man with 40 per cent hemoglobin. He can stand very much less exercise than a man whose deficiency is due to a simple anemia. So there are special circumstances which must be taken into account in patients who have partial saturation with carbon monoxide.

DR. CATTELL: We see comparable changes from anoxia from other causes, which makes it probable that an oxygen deficiency underlies all the symptoms occurring in carbon monoxide poisoning.

DR. DUBOIS: I should like to ask Dr. Helpern why brain lesions are so common in carbon monoxide poisoning and apparently are found very seldom in other cases of anoxias, such as heart disease, anemias, and so on. Is there any explanation?

DR. HELPERN: I do not know, Dr. DuBois, what the explanation is, except to say that it may depend upon the difference between the oxygen dissociation curves of the blood in carbon monoxide poisoning and in a severe anemia where there has been a comparable reduction of oxygen carrying capacity. This was pointed out in 1925 by Stadie and Martin whose paper is quoted by Dr. Drinker in his book on carbon monoxide poisoning. They show that the blood of an anemic person has a normal type of oxygen dissociation curve with sufficient oxygen tension, despite reduced oxygen-carrying capacity, to supply additional oxygen to the tissues when needed, but that the blood in carbon monoxide poisoning has an abnormal type of oxygen-dissociation curve with such marked lowering of the oxygen tension as to be unable to supply additional oxygen to the tissues on sudden demand, despite the fact that the blood still contains several times the amount of oxygen necessary for tissue function. The anemic person therefore has a more flexible mechanism with which to supply oxygen to the tissues than the person who is suffering from carbon monoxide poisoning.

This difference in the anoxemia of carbon monoxide poisoning as contrasted with that of severe anemia may possibly explain the production of the brain lesions in the former condition and their absence in the latter.

It is interesting that these symmetrical softenings in the globus pallidus have never been observed or produced experimentally in the lower animals. The lesion is peculiar to human beings. Why this is has never been explained.

DR. EPHRAIM SHORR: Is not the problem one of what happens to the tissues in carbon monoxide poisoning—that is, an impairment of the affinity of the iron system in the tissues—so that there is a failure of utilization as well as the failure of deficiency? In ordinary anemias and anoxia from other causes there are no disturbances in the transfer of oxygen in the cellular oxidation.

DR. DUBOIS: Do you want to comment on that, Dr. Cattell?

DR. CATTELL: It is known that very high concentrations of carbon monoxide—that is, several atmospheres—do interfere with the respiratory enzymes, as was shown by Warburg. In the body one is ordinarily dealing with concentrations of carbon monoxide which are of the order of a fraction of 1 per cent, and I think it has never been demonstrated that such amounts have any influence on living systems.

The fact that mice can survive indefinitely in an atmosphere of carbon monoxide, if sufficient

oxygen is provided, would indicate that there is no respiratory interference.

DR. SHORR: It would be interesting to know how brain oxidations are influenced under those circumstances.

DR. HARRY GOLD: Are mice especially resistant to poisoning by carbon monoxide? Dogs cannot live more than thirty minutes in a concentration of 1.5 per cent in ordinary air.

DR. CATTELL: Probably not. The point is that if one provides a sufficiently high concentration of oxygen there will be enough carried in the plasma to sustain life. Haldane calculated that this would be provided by three atmospheres of oxygen, and he reasoned that if the toxic effects of carbon monoxide were confined to its influence on hemoglobin, the mice should survive an added atmosphere of carbon monoxide. He put the matter to the test and showed that mice survived indefinitely in a mixture of 25 per cent carbon monoxide and 75 per cent oxygen at 4 atmospheres pressure.

DR. GOLD: I want to ask Dr. Helpern whether carbon monoxide is lost rapidly after death so that one must examine the body at once?

DR. HELPERN: No. There is no appreciable loss of carbon monoxide from the body after death. It can be detected in the blood of decomposed bodies and in the blood clots obtained from exhumed embalmed bodies months after burial.

It is important, however, to remember that carbon monoxide disappears rapidly from the living body after the victim is removed from the atmosphere of the gas into the fresh air. The gas is eliminated even more rapidly if the inhalator is used. If an accurate determination is to be made of the maximum concentration of carbon monoxide in the victim's blood, about 20 cc. of blood should be withdrawn from a vein immediately or as soon as possible after exposure, and placed in a small tightly stoppered bottle to which a small amount of citrate has been added. When the concentration of the carbon monoxide in the blood is high, the blood usually remains fluid and the addition of citrate is unnecessary. Medicolegal questions frequently arise in connection with victims of carbon monoxide poisoning who recover or survive long enough for the gas to have disappeared from the blood. Failure to remove blood for chemical tests may leave questionable the diagnosis of an authentic case. The qualitative tests can be carried out at the bedside. A drop of blood is diluted with 10 cc. of water in a test tube and a few drops of 10 per cent sodium hydroxide are added. Diluted normal blood which should be used as a control turns brown; diluted blood containing carbon monoxide remains pink after the addition of the alkali. The qualitative tests will not show the presence of carbon monoxide if the blood is less than 10 per cent saturated with the gas.

DR. KIRBY MARTIN: I think there may be misunderstanding about the value of the Henderson-Haldane treatment, because our understanding of the mechanism has changed. There is one, and only one, means of treatment of carbon monoxide poisoning at the present time, and that is a mixture of carbon dioxide and oxygen which makes the patient ventilate faster and speeds the elimination of carbon monoxide from the blood.

When I was working experimentally on dogs with Stadie, we found a shift in the oxygen dissociation curve in the presence of carbon dioxide and a relatively high tension of the oxygen in the tissues. Thus, the explanation of the efficiency of carbon dioxide has been changed, but the treatment remains exactly as it was when Henderson described it in 1932.

DR. GOLD: Dr. Helpern says that exhaust gas contains about 7 per cent of carbon monoxide. I wonder whether most people know that the gas from the smoking of cigars contains about 7 per cent of carbon monoxide, and about 4 or 5 per cent from these little things (holding up a cigarette).

DR. MARTIN: May I say something about a cigarette? About ten years ago there was an expedition to high altitudes by someone whose name I cannot recall. He was not a scientist but was doing it purely for sport. He wrote up his experiences. When he and his party got to a high altitude where three or four steps would lead to exhaustion, they found that if they would smoke a cigarette and inhale it completely—that is, as deeply as they could—they could go approximately twice the distance with the same amount of exertion or less. That fits in with what I told you a minute ago. It changes the oxygen dissociation curve to a point where they get more oxygen at a lower tension. A cigarette does help in that respect.

DR. GOLD: It is the carbon monoxide that does that?

DR. MARTIN: Yes.

DR. DUBOIS: That is very interesting.

In closing, I want to call attention to the use of canaries and mice in the prevention of carbon monoxide poisoning, a cheap method. At the present time we also have gas masks, and so on, which can be fitted with material to remove carbon monoxide.

Summary

DR. CATTELL: In addition to its presence in artificial illuminating gas, carbon monoxide is formed whenever organic material is burned. It is thus universally present and is one of the

commonest forms of accidental and suicidal poisoning. The source of the carbon monoxide may not be evident, in which case the diagnosis is likely to be overlooked. After survival for several hours most of the carbon monoxide is eliminated from the body, and the symptoms are likely to be misleading.

In rapidly fatal cases, such as may occur from the inhalation of illuminating gas or the exhaust gases from an automobile, there is a characteristic cherry-red discoloration of the skin, blood, and organs. When asphyxiation is more prolonged, numerous fine petechial hemorrhages are frequently found throughout the white matter of the brain. In patients surviving carbon monoxide poisoning for twenty-four hours or more a characteristic lesion occurs in the brain, a bilateral symmetrical softening or anemic necrosis of the globus pallidus. In delayed deaths this is the only consistent finding, although lesions in other organs may be occasionally found.

The question of chronic poisoning has been discussed and the view expressed that there is no satisfactory evidence of such a condition, nor does it appear rational, in view of the large margin of safety of the circulation, that asphyxial damage should occur when the carboxyhemoglobin is present in amounts no greater than from 20 to 30 per cent.

From a pharmacologic standpoint carbon monoxide is practically inert. It owes its toxic properties to the fact that it combines with hemoglobin, thus making it unavailable for the transport of oxygen. Every symptom of poisoning can be accounted for by the asphyxia thus produced. A reversible equilibrium exists in the blood between the proportions of oxy- and carboxyhemoglobin on one hand, and the partial pressures of oxygen and carbon monoxide on the other. But since the affinity of carbon monoxide for hemoglobin is about 210 times that of oxygen, the proportion of carboxyhemoglobin is relatively high.

Treatment consists in the administration of oxygen to promote the elimination of carbon monoxide and to supply oxygen to the tissues. Carbon dioxide is given to stimulate respiration and promote the release of oxygen to the tissues. A mixture of 7 per cent carbon dioxide and 93 per cent oxygen is administered by means of a face mask, with artificial respiration when necessary. With the possible exception of caffeine, drugs have no place in the treatment of poisoning by carbon monoxide. In severe cases measures to combat shock are important.

FOOD FOR OVERSEAS FORCES

The many problems of feeding the overseas troops of the United States are being successfully solved by the Quartermaster's Subsistence Research Laboratory, whose job is to make Army rations palatable and nutritious under adverse conditions of transportation and storage.

Four different types of field rations have been developed, known as Rations A, B, C, and D. Field Ration A is composed of both perishable and nonperishable foods, purchased, in part, in the area where the troops are stationed. In restricted areas troops are given Ration B, which is made up of sugar, salt, flour, and canned or dehydrated meats, fruits, and vegetables.

Where field kitchens can be used, "operational rations" are issued. Ration C, consisting of 6 cans of food, is the chief operational ration. Three of the cans, one for each meal, are identical—containing hard candy, special biscuits, sugar, and soluble coffee. The other three contain meat and beans, meat and vegetables, and meat and vegetable hash. Ration D, an emergency ration, is composed of three 4-ounce chocolate bars, reinforced with thiamine.

Another ration, designed for parachute troops, may replace Ration C. This is called Ration K and includes three moisture-proof and gas-resistant packages, each containing two kinds of biscuit, canned meat or cheese, a confection, a beverage concentrate, chewing gum, and four cigarettes.

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If you are bored with patients who abuse their digestive tracts—*don't grumble*—the O. P. A. will treat them for you.

If you are called out at night—*don't grumble*—picture the horse and buggy and dirt roads.

If the patients flock to you at all hours—*don't grumble*—remember the old days when you almost ran to meet a patient.

If a neurotic calls you on the telephone—*don't grumble*—at least you are saved the ordeal of looking at her.

If your secretary makes a mistake—*don't grumble*—think of the mistakes of yours which she hides.

If you miss your second cup of coffee—*don't grumble*—you had the first cup.

If the income tax hits you a mighty wallop—*don't grumble*—you are still privileged to pay in Uncle Sam's currency.

If you are forced to bed with sickness—*don't grumble*—think of the medicine you would have to take if you were one of your patients.

If you feel so tired you don't think you can last another day—*don't grumble*—Hitler is feeling the same way.—*J. South Carolina M. A.*

Case Report

URTICARIA FOLLOWING A DENTAL SILVER FILLING

HARRY MARKOW, M.D., Brooklyn

WHEN unusual cases of allergy are ultimately diagnosed as to the specific excitant involved, it is generally agreed that a detailed and painstaking history was of paramount importance in the diagnosis. Although the original history may offer no clue as to the cause, repeated questioning of the patient on subsequent visits will often uncover some detail, seemingly unimportant to the patient, which later will prove to be the clue necessary for the diagnosis of the excitant that is responsible for the symptoms.

Sensitivity to, and allergic manifestations from, ingested drugs and chemicals occur frequently and contact dermatitis from metals, especially in industry, is not uncommon. This case is reported not only because it is unusual, but also because a search of the literature fails to reveal any report of sensitivity to mercury or quicksilver when it is in contact with a mucous membrane, with resultant allergic manifestations both locally and in other parts of the body.

Case Report

History.—T. S., a nurse, aged 41, reported to the allergy clinic of the Beth-El Hospital on April 17, 1941, complaining of generalized urticaria since April 2, 1941. The history on admission related that since April 2 she had had daily and nightly attacks of scattered hives on her arms, legs, chest, back, and face which itched intensely. Her description of these lesions was that there suddenly appeared itching red welts of various sizes all over her body and face, associated with a swelling of her lips and tongue and the lining of her mouth. These lesions, which came and went and were a daily and nightly occurrence, were sufficiently severe to interfere with her sleep. However, she continued her duties at the hospital despite her discomfort. She had no idea of the cause of her symptoms. Later, a subsequent and more complete history, which she had not mentioned previously, narrowed the onset of her symptoms to a visit to her dentist, who had filled a cavity in a tooth with a silver filling.

The following morning she experienced her first attack, consisting of scattered urticarial wheals over her arms, legs, chest, abdomen, and face, together with an itching and burning sensation of her body. These symptoms recurred daily and nightly. Three days later she returned and had the filling removed and replaced with a larger filling, and on this visit she noted a burning sensation of the lips, tongue, and lining of her mouth as well as a feeling of rawness and swelling where the instruments came in contact with the lining membranes. On leaving the office she noticed that her tongue and lips were swollen, and later she felt an itching and burning over her body. Scattered hives developed and lasted for several hours. Although she visited the dentist every three or four days, she failed to correlate the hives with the dental work. Since then the urticaria had recurred daily and nightly and the sensation of rawness, burning, and swelling of her tongue and mouth, although less intense, persisted At the time of her admission to the clinic, her symptoms were severe enough to interfere with her sleep, and she felt miserable. There were no changes in her environmental contacts; her diet was unchanged and so was her mode of living.

She had had a mild attack of hives during childhood which was considered, at that time, to be due to foods. A second attack of hives of one week's duration had occurred when she was 21 years old and was in training. That had also been attributed to foods. From October, 1940, to January, 1941, she had had a contact dermatitis of both arms and chest. She was tested by a dermatologist and patch tests revealed a sensitivity to nickel, aluminum chloride, and dress dyes. On advice, she eliminated a deodorant which contained aluminum chloride and avoided black-dyed clothes. She also avoided sharkskin dresses, which irritated her skin. This dermatitis subsided after she had taken weekly x-ray treatments for a period of ten weeks.

A sister of the patient has eczema, and her niece and nephew have hay fever. On physical examination a few small scattered hives were found on her arms, neck, and lower extremities. Her mouth and tongue appeared to be normal although she complained of a sensation of burning, rawness, and swelling of her tongue and cheek on the side of her mouth close to the new tooth filling. A Wassermann test was negative, and urine and blood count were both normal.

Allergy Study.—Intercutaneous tests with foods and inhalants were begun and were continued slowly over a period of two months. These were essentially negative except for an occasional slight reaction to some foods. Eliminating these foods did not influence the appearance or the degree of symptoms during that period.

The patient was asked to obtain from her dentist samples of the ingredients of the silver filling and to bring them to the clinic. These consisted of both metallic mercury, or quicksilver, and metals in powdered form. Amalgam is made by rubbing this metallic powder with small amounts of mercury. The resulting mixture is used and known as an amalgam filling. The metals used in the powder consist of about 60 per cent silver, 10 to 15 per cent tin, and some copper. The amalgam filling contains about 10 per cent mercury or quicksilver. Scratch tests were made with mercury and the powdered metals and resulted in a very light erythema about the site of the mercury test with a negative control. Owing to the physical nature of mercury, a suitable test was a difficult problem. The scratch test was made by rubbing a cotton applicator into the mercury and gently rubbing the

From the Department of Medicine, Division of Applied Immunology, Beth-El Hospital, Brooklyn.

[Continued on page 1650]

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scratch site with this. About the area of the scratch test a few discrete hives appeared, but the test itself was only an erythema with a slight linear wheal. The control had a slight linear wheal without an erythema. Since this was not very conclusive, some mercury, spilled into the cupped hand, was rubbed into the skin of the patient's arm. At the same time the opposite arm was rubbed with the clean hand. Within five minutes a diffuse urticarial eruption developed over the area rubbed with the mercury, while the opposite arm remained normal as a control, thus eliminating the probability of an irritable skin. Rubbing the arm with the metal powder did not result in any similar reaction. Similar tests were done on the arms of five other patients, none of whom gave any reaction to either the mercury or the metal powder.

Subsequent Study and Procedure.—These tests with mercury, metal powders, and dry control hand were repeated the following week on the patient and five other control patients with similar results. At our suggestion this filling was removed by the dentist on April 25, 1941. During this procedure the patient again felt the sensation of swelling, burning, and rawness of the mouth and tongue and, within a few hours, she had an intense flare-up of generalized urticaria. Within a week there was a definite relief of all mouth symptoms. Two weeks later these were completely gone, but she still had mild generalized urticaria involving her body but not her face. On May 14, 1941, she reported that the hives were less intense and were becoming milder and that for the first time she had had two days free of symptoms. On this day, another contact test with mercury (rubbed into arm) was immediately followed by a large area of urticaria over the area that was tested. Similar tests on other patients failed to produce any urticarial lesions. Patch tests with bichloride of mercury, tin foil, a gold bar pin, a silver bar pin, and copper earrings were negative. Rubbing the skin with these metal ornaments which she wore also caused no reaction. On May 17, 1941, she reported that she had visited the dentist on two occasions and that the contact of her tongue and cheek with the mirror and other instruments caused a burning sensation of her mouth and tongue and a flare-up of hives the following day. The hives were less intense and were now limited to her arms. Her face was clear, and she was able to sleep. On June 26, 1941, a small amount of mixed mercury filling was prepared by the dentist as if for a tooth filling. Instead, it was supported by her finger against the roof of her mouth for one hour. She immediately noticed a burning sensation on her tongue and a raw feeling in her mouth similar to the original complaints prior to treatment. On the next day, she awoke with a burning sensation of the skin and an outbreak of hives on her arms, thighs, and abdomen, which persisted for about twenty-four hours. Prior to this she had been free of hives for five days, this being the longest such period of freedom of symptoms since the onset of the urticaria.

Examination of her teeth revealed that she had seven other silver fillings in her mouth. It was suggested that these be removed and replaced with cement fillings. Two were removed in the following two weeks and after the removal of each silver filling, there was a flare-up of hives on her body five hours later, lasting for about seven hours. The tongue and mouth were not involved, however, and her sleep was not disturbed. Subsequently, all the metal fillings were removed and replaced with porcelain fillings. On August 6, 1941, her hives ha completely disappeared. On October 2, 1941, sh reported that she was feeling well, was eating a foods, and that the hives had not recurred for th past two months. On March 20, 1942, the patien reported that she has had no recurrence of symp toms since the removal of all the silver fillings in he teeth.

Passive Transfer Experiment.—An attempt to transfer sensitivity to normal skin was made by injecting an area of skin the size of a quarter with the patient's serum in two normal individuals. After seventy-two hours, this area was rubbed with mercury in the same way that urticaria was produced in this patient. These attempts to demonstrate transferred sensitivity to mercury by this method failed.

Discussion

Reference in the literature to sensitivity to mercury, particularly when used in dental fillings, is very uncommon. However, Duke,* in a discussion on fungus allergy, quoted a case of sensitiveness to mercury and amalgam teeth fillings, and the removal of one of the many amalgam fillings was followed by so serious a general reaction to mercury that the patient refused further treatment. He mentioned another case of acne and fungus infection with sensitivity to mercury. There were many mercury fillings in the teeth of the patient, and mercury salts and amalgam filling material reacted on patch test. This patient improved somewhat under treatment with exposures to mercury vapor light, but complete recovery did not occur until injections of sodium thiosulfate had been given. In the case reported here, the onset of urticaria with local buccal and tongue edema and paresthesia followed shortly after the introduction of a mercury filling into a tooth and, repeatedly, exacerbations were induced by the removal of such fillings and by the use of a similar filling placed against the hard palate as a provocative procedure. Although several such fillings were in the mouth for many years, the outbreak of this attack came on only after the last filling. In all probability, sensitivity was induced by contact with the previous fillings, and the allergic response occurred following the last filling. The previous attack of dermatitis due to nickel might suggest that the instruments were the offending factors but subsequent asymptomatic dental work with cement fillings rules out this factor. In addition to the tests cited, compounds of mercury, such as bichloride of mercury and yellow oxide of mercury, were used in patch tests and rub-in tests with negative results.

While this method of demonstrating induced sensitivity to mercury may be unorthodox, the reaction is comparable to those cases which are so exquisitely sensitive to an ingestant, such as egg, that the mere contact of the skin with the excitant results in an immediate allergic reaction such as bronchial asthma, eczema, or angioneurotic edema. Also, it may be compared to the contact test with volatile substances producing a local skin reaction in cases of nasal or bronchial allergic manifestations.

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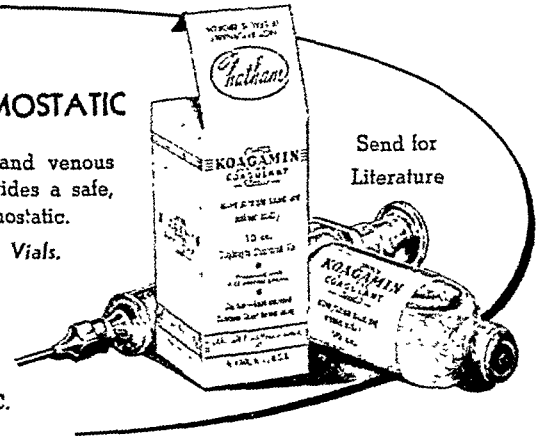
* Duke, W. W.: J. Allergy 11: 318 (1940).

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for
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BREWER & COMPANY, Inc.

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[Continued from page 1650]

This case is reported as one of allergy to mercury or quicksilver for the following reasons:

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3. Exacerbations (repeated) of symptoms on the removal of mercury fillings from the teeth, with spillovers into the mouth.
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6. Allergic background and family history of allergy.
7. Previous history of contact dermatitis, with sensitiveness to nickel, aluminum chloride, and dress dyes.

881 Park Place
Brooklyn

PERSONAL HYGIENE IS WEAPON AGAINST TROPICAL DISEASE

SOMEWHERE IN THE SOUTH PACIFIC.—The Japs may have withdrawn but the disease axis which makes a bastion of these "tropical paradises" stubbornly hems in our jungle fighters.

Cardinal tenet acquired by the Marines in their intensive training for tropical fighting is personal cleanliness. Medical and line officers repeatedly emphasize the necessity of keeping the body and clothes clean.

The battle is not peculiar—to the Marines. All the fighting forces must meet and solve the problem. But, because they are a swift, mobile force and thus can carry only essential equipment, the problem for them is more acute. . . . .

The way to cleanliness under such conditions, according to Navy Lieutenant Bruce W. Milligan, of Jacksonville, Illinois, is soap.

"When we bivouac over night, the men soak and wash the clothes they wore that day when possible in boiling water. They are chiefly particular about socks and underwear.

"We try to assure a bath a day for the men, a difficult task at best, since we're on the go and must depend on whatever water we can find or catch in the rain.

"With soap and water applied daily we can put up a successful fight against the fungi that fester the skin and open the path for infection. Soap is also the chief weapon against flies which menace health in the tropics.

"Men have been inculcated with the wisdom of sterilizing their mess gear in scalding soapy and clear water before and after eating.

"Malaria is a tougher nut to crack, but with this problem, too, great progress has been made. Atabrine has proved its value as a substitute for Jap-controlled quinine, and the men take daily doses. Every jungle fighter is equipped with mosquito net, a practical safeguard against the malaria-carrying mosquitoes of the tropics.

"Besides atabrine, the daily menu includes salt tablets and vitamin concentrate to supplement field rations. When possible, the medical officers purify the drinking water by chlorination, but for emergencies the men carry a tube of iodine to sterilize their own canteens.

"In the tropical humidity, cuts are slow to heal, organisms settle faster in the wound and cause it to fester. Such a common infection as athlete's foot, something you joke about in the States, will immobilize the infantryman unless treated. A coral cut suffered in landing operations or during swimming requires immediate attention or the Marine becomes a casualty.

"We know that disease is as much an enemy of the Japs as us, and we realize that the better we resist the disease axis, the better we fight the Japs. The men know that it is not enough to keep their rifles in perfect condition; they know that equal care must be given their bodies."—*Staff Sergeant Samuel E. Satvisky, Marine Combat Correspondent in Ill. Med. J*

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Howard G. Case	62	Syracuse	August 4	Syracuse
Gustavus C. Darlington	81	L.I.C. Hosp.	July 28	Manhattan
Peter De Gaetano	53	L.I.C. Hosp.	July 31	Brooklyn
Frank B. Donohue	69	P. & S., N.Y.	July 27	Bloomingburg
Matthew H. DuBois	71	Bellevue	August 8	Washingtonville
Burton A. Hall	62	Syracuse	July 24	Oxford
John F. Kent	77	Bellevue	August 1	Brooklyn
George H. Ketler	32	Buffalo	July –	Menands
William H. Lohman	62	P. & S., N.Y.	August 8	Brooklyn
Homer P. Marsh	76	N.Y. Univ.	July 31	Constantia
George W. Mellon	53	Pennsylvania	August 7	Manhattan
Thomas F. Patterson	73	L.I.C. Hosp.	July 24	Brooklyn
James Walsh	73	N.Y. Hom.	July 31	Cortland
Moses Weiss	41	Prague	August 7	Manhattan

WAR DEPARTMENT
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D. C.

17 July 1943

To the Men and Women
of the General Electric X-Ray Corporation
2021 West Jackson Boulevard
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I am pleased to inform you that you have won for the second time the Army-Navy Production Award for meritorious services on the production front

You have continued to maintain the high standard that you set for yourselves and which won you distinction more than six months ago You may well be proud of your achievement

The White Star, which the renewal adds to your Army-Navy Production Award flag, is the symbol of appreciation from our Armed Forces for your continued and determined effort and patriotism

Sincerely yours,

Robert P Patterson
Under Secretary of War



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X-RAY CORPORATION
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Honor Roll

Medical Society of the State of New York

Member Physicians in the Armed Forces

Supplementary List*

The following list is the tenth supplement to the Honor Roll published in the December 15, 1942, issue. Other supplements appeared in the January 1, January 15, February 15, March 1, March 15, April 15, June 1, July 1, and August 1 issues.—*Editor*

A

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Anthony, H. E.
Moravia, N.Y.

B

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110 E. 80 St., New York, N.Y.
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Bergstein, J.
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Best, D. L.
Middleburg, N.Y.
Bloom, David
345 E. 77 St., New York, N.Y.
Broder, W. J.
4815 Clarendon Rd., Brooklyn, N.Y.
Browd, V. L.
152 W. 58 St., New York, N.Y.
Brown, J. E.
State Hospital, Ogdensburg, N.Y.
Browne, H. R.
Delmar, N.Y.

C

Callin, L. R.
Savannah, N.Y.
Carr, F. S.
17 Pearl St., Kingston, N.Y.
Carrozza, N. S.
108 Vanderbilt St., Brooklyn, N.Y.
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47-49 157th St., Flushing, N.Y.
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45-18 Parsons Blvd., Flushing, N.Y.
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468 Delaware Ave., Buffalo, N.Y.
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114 E. 54 St., New York, N.Y.
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921 Nott St., Schenectady, N.Y.
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8 Platt St., Walton, N.Y.
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33 Brookline Drive, Utica, N.Y.
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1 Flower Bldg., Watertown, N.Y.
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40 E. 61 St., New York, N.Y.

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801 University Bldg., Syracuse, N.Y.
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Theresa, N.Y.
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Dubinsky, A.
36 Park Ave., New York, N.Y.
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E

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Eisen, M. J.
630 W. 168 St., New York, N.Y.
Eisenberg, D.
418 W. 23 St., New York, N.Y.
Eisenberg, J.
Malverne, N.Y.
Ellsworth, J. E.
1705 Hyde Park Blvd., Niagara Falls, N.Y.
Evans, J. N.
23 Schermerhorn St., Brooklyn, N.Y.

F

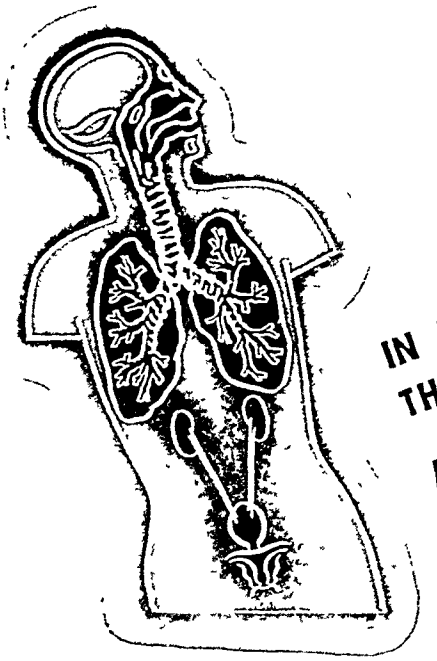
Fairchild, R. D.
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853 7th Ave., New York, N.Y.
George, W. D.
203 Trust Co. Bldg., Watertown N.Y.
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2162 Main St., Buffalo, N.Y.
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Glueck, B.
Stony Lodge, Ossining, N.Y.
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16 Garfield Place, Poughkeepsie, N.Y.

[Continued on page 1656]

*The names of Drs. A. H. Aaron, 40 North Street, Buffalo, H. D. Berlowitz, 1446 President Street, Brooklyn, and H. H. Cohen, 698 West Avenue, New York City, were published in the Honor Roll in the August 1 issue by mistake. They are not in the service.—*Editor.*



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Suffern, N.Y.

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Reiss, A.
Monroe, N.Y.
Remington, J. H.
304 West Ave., Rochester, N.Y.
Rosen, J. R.
230 W. 16 St., New York, N.Y.

S

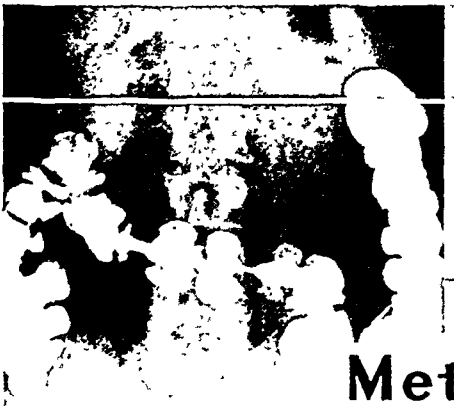
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462 Grider St., Buffalo, N.Y.
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Board of Health, Honolulu, T.H.
Streeter, R. G. (Lt. Com).
U. S. Naval Training Station, Sampson, Geneva, N.Y.

T

Trubowitz, S.
397 Linden Blvd., Brooklyn, N.Y

W

Wilkinson, R. S. (Capt.)
2816 Eighth Ave., New York, N.Y.
Winer, M. N.
45 Barker St., Buffalo, N.Y.



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—aids normal bowel function

—protects the mucosa against irritating food residue

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Average dose—One rounded teaspoonful, stirred in a glass of milk or other liquid, followed by an additional glass of liquid.



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RESEARCH IN THE SERVICE OF MEDICINE

Thirty-Seventh Annual Meetings

of the

District Branches

of the

Medical Society of the State of New York

PROGRAMS*

Third District Branch

Tuesday, September 21, 1943

Hendrick Hudson Hotel

Troy, New York

Afternoon Session

2:15 P.M.—Motion Sound Pictures: "Blood Transfusion," "Health in War"

3:15 P.M.—"Lesions and Abnormalities About the Mouth," lantern slide and motion picture demonstration
James E. McAskill, M.D., Watertown, New York

4:00 P.M.—"Postwar Problems in Tropical Diseases in Civilian Practice"
Col. Eugene R. Whitmore, Medical Corps, United States Army (Retired), Washington, D.C.

6:00 P.M.—Social Hour
Entertainment to be provided by the Woman's Auxiliary of the Rensselaer County Medical Society

7:00 P.M.—Dinner; Alson J. Hull, M.D., Toastmaster

8:00 P.M.—Address by Thomas A. McGoldrick, M.D., Brooklyn, *President of the Medical Society of the State of New York*

8:30 P.M.—"The Navy College Training Program"
Capt. Mark C. Bowman, United States Navy

Ladies will join with members of the District Branch for dinner.

Prize to Be Given

The Third District Branch will donate a prize of $25.00 to that Women's County Auxiliary from which county there is the largest percentage of physicians registered at this meeting.

Officers—Third District Branch

President.....Stephen H. Curtis, M.D., Troy
First Vice-President.....Homer L. Nelms, M.D., Albany
Second Vice-President.....John L. Edwards, M.D., Hudson
Secretary.....Harry Golembe, M.D., Liberty
Treasurer.....William M. Rapp, M.D., Catskill

Presidents of Component County Societies

Albany.....Morgan O. Barrett, M.D., Albany
Columbia.....Cecil L. Schultz, M.D., Philmont
Greene.....Norman S. Cooper, M.D., Athens
Rensselaer.....Alson J. Hull, M.D., Troy
Schoharie.....Roy G. S. Dougall, M.D., Cobleskill
Sullivan.....Ralph S. Breakey, M.D., Monticello
Ulster.....James S. Taylor, M.D., Kingston

Fifth District Branch

Wednesday, September 22, 1943

Hotel Syracuse

Syracuse, New York

Afternoon Session

2:30 P.M.—"Common Diseases of the Skin," with lantern slide illustrations
Leon H. Griggs, M.D., Associate Professor of Dermatology, Syracuse University College of Medicine

3:30 P.M. to 5:30 P.M.—Symposium by the Department of Obstetrics

"The Use of Caudal Anesthesia in Obstetrics"
Francis Irving, M.D., Clinical Professor of Obstetrics, Syracuse University College of Medicine; Albertson Lippincott, M.D., Frank Meyer, M.D.

"Episiotomy—Recent Technics
R. J. Pieri, M.D., Clinical Professor of Obstetrics, Syracuse University College of Medicine

"The Significance of Vaginal Bleeding During the Third Trimester of Pregnancy"
Merton Hatch, M.D., Associate Professor of Obstetrics, Syracuse University College of Medicine

[Continued on page 1660]

* Programs of the First, Second, Fourth, and Eighth District Branch Meetings will appear in a later issue.

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MINIMUM TIME FOR DOCTOR...



with this complete liquid infant formula!

BIOLAC SUPPLIES milk proteins, milk minerals, iron, and vitamins A, B_1, B_2 and D in amounts which equal or exceed recognized requirements for infants. Thus with the sole exception of vitamin C, Biolac provides *complete* nutrition for the bottle-fed baby.

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[Continued from page 1658]

"Recent Advances in Cesarean Section"
Vincent Hemmer, M.D., Associate Professor of Obstetrics, Syracuse University College of Medicine

"Control of Late Toxemias of Pregnancy"
Edward C. Hughes, M.D., Professor of Obstetrics, Syracuse University College of Medicine

If time permits, there will be showing of colored motion pictures of various obstetric operations.

Evening Session

6:00 P.M.—Dinner
Address by Thomas A. McGoldrick, M.D., Brooklyn, *President of the Medical Society of the State of New York*
Business Meeting—Election of Officers

8:00 P.M.—"Lesions and Abnormalities About the Mouth," illustrated with Kodachrome slides
James E. McAskill, M.D., Watertown, New York.

"Meningicoccal Infections"
J. Howard Ferguson, M.D., Professor of Pathology, Syracuse University College of Medicine.
Discussion by O. D. Chapman, M.D., Professor of Bacteriology, Syracuse University College of Medicine, and A. C. Silverman, M.D., Professor of Pediatrics, Syracuse University College of Medicine.

Ladies will join with members of the District Branch for dinner.

Prize to Be Given

The Executive Committee of the Fifth District Branch will donate a prize of $25.00 to that Woman's County Auxiliary from which county there is the largest percentage of physicians registered at this meeting.

Officers—Fifth District Branch

President..Edward C. Reifenstein, M.D., Syracuse
First Vice-President.....William Hale, M.D., Utica
Second Vice-President.....
.....Sherman M. Burns, M.D., Oswego
Secretary.....H. Dan Vickers, M.D., Little Falls
Treasurer.....Edgar O. Boggs, M.D., Lowville

Presidents of Component County Societies

Herkimer.....Byron G. Shults, M.D., Herkimer
Jefferson.....S. E. Simpson, M.D., Watertown
Lewis.....David J. O'Connor, M.D., Croghan
Madison.....Jackson W. Thro, M.D., Hamilton
Oneida.....Bradford F. Golly, M.D., Rome
Onondaga.....Herbert C. Yeckel, M.D., Syracuse
Oswego.....William F. Fivaz, M.D., Fulton

Sixth District Branch

Tuesday, September 28, 1943
Willard Straight Hall
Cornell Campus
Ithaca, New York

Morning Session

10:00 A.M.—"Continuous Caudal Anesthesia"
Francis R. Irving, M.D., Clinical Professor of Obstetrics, Syracuse University College of Medicine

11:00 A.M.—"Hematuria"
Thomas J. Kirwin, M.D., *New York City*

12:00 M.—Luncheon
Address by Thomas A. McGoldrick, M.D., Brooklyn, *President of the Medical Society of the State of New York*

Afternoon Session

1:45 P.M.—Business Meeting—Election of Officers

2:00 P.M.—"Physiological Considerations in the Treatment of Burns"
Lieutenant Herbert Brown, (M.C.) USNR, Brooklyn

3:00 P.M.—"Anticoagulants"
A. Wilbur Duryee, M.D., Associate Clinical Professor of Medicine, New York Post-Graduate Medical School, Columbia University

Ladies will join with members of the District Branch for luncheon.

Officers—Sixth District Branch

President.....Norman S. Moore, M.D., Ithaca
First Vice-President.....
.....*Charles L. Pope, M.D., Binghamton*
Second Vice-President.....
.....Norman C. Lyster, M.D., Norwich
Secretary...Hubert B. Marvin, M.D., Binghamton
Treasurer.....William A. Moulton, M.D., Candor

Presidents of Component County Societies

Broome....Elton R. Dickson, M.D., Binghamton
Chemung.....Florence S. Hassett, M.D., Elmira
Chenango...William P. Elliott, M.D., New Berlin
Cortland.....Hugh Frail, M.D., Marathon
Delaware.....Fisk Brooks, M.D., Delhi
Otsego.....Mahlon C. Halleck, M.D., Worcester
Schuyler....John W. Burton, M.D., Mecklenburg
Tioga.....John B. Schamel, M.D., Waverly
Tompkins.....Joseph N. Frost, M.D., Ithaca

Seventh District Branch

Thursday, September 30, 1943
Academy of Medicine
Rochester, New York

Morning Session

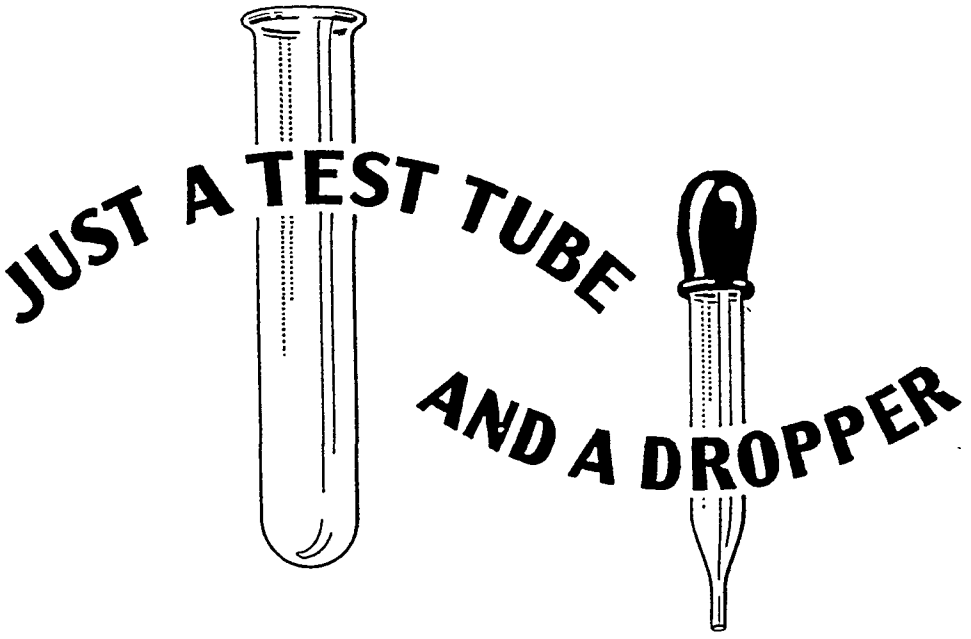
9:30 A.M.—Registration

10:00 A.M.—Films (Titles to be announced)

11:00 A.M.—"Recent Improvements in Biliary Tract Surgery (lantern slides)
Richard B. Cattell, M.D., Surgeon, The Lahey Clinic, Boston; New England Deaconess Hospital; New England Baptist Hospital

12:00 M.—Business Meeting—Election of Officers
Address by Thomas A. McGoldrick, M.D., Brooklyn, *President of the Medical Society of the State of New York*

[Continued on page 1662]



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TABLET METHOD

A Copper Reduction Test

A SIMPLE, TIME-SAVING TECHNIC

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[Continued from page 1660]

12:30 P.M.—Buffet Luncheon—Tickets $1.00

Afternoon Session

1:30 P.M.—"Postwar *Tropical Disease Problems*"
L. T. Coggeshall, M.D., School of Public Health, University of Michigan, Ann Arbor

2:30 P.M.—"On the Role of Myocardial Disease in Heart Failure"
David P. Barr, M.D., Professor of Medicine, Cornell University, New York City

Officers—Seventh District Branch

President...Benjamin J. Slater, M.D., Rochester
First Vice-President.....
.....H. J. Knickerbocker, M.D., Geneva
Second Vice-President.....
..... Howard S. Brasted, M.D. Hornell
Secretary.....Lloyd F. Allen, M.D., Pittsford
Treasurer.....Kenneth T. Rowe, M.D., Dansville

Presidents of Component County Societies

Cayuga.....Bernard L. Cullen, M.D., Auburn
Livingston.....William B. Turney, M.D., Avon
Monroe.....G. Kirby Collier, M.D., Rochester
Ontario....Adrian S. Taylor, M.D., Clifton Springs
Seneca.....Roy E. Wallace, M.D., Seneca Falls
Steuben.....Stuart H. Bean, M.D., Addison
Wayne.....Ralph Sheldon, M.D., Lyons
Yates.....Allen W. Holmes, M.D., Penn Yan

CARDIAC CLINIC DIRECTORY PUBLISHED

The New York Tuberculosis and Health Association recently published the Directory of Affiliated Cardiac Clinics, compiled and issued annually by the Association's Heart Division.

According to Dr. J. Burns Amberson, Jr., president of the Association. Affiliated Cardiac Clinics are those which have met the standard requirements of the New York Heart Association, of the New York Tuberculosis and Health Association. There are 41 such clinics located in New York City—22 in Manhattan, 4 in the Bronx, 10 in Brooklyn, and 5 in Queens.

Listed in the directory also are the vocational rehabilitation and employment services for cardiac patients in New York City, and the Cardiac Convalescent Homes available to residents of this city. These are: The Convalescent Home of the Burke Foundation in White Plains, Irvington House at Irvington-on-Hudson, the New York State Reconstruction Home in West Haverstraw, Pelham Home for Children at Pelham Manor, St. Francis Sanatorium for Cardiac Children in Roslyn, Long Island, and the Speedwell Society at 446 East 88 Street, New York City.

In his introduction to the directory, Dr. Irving R. Roth, chairman of the Committee on Cardiac Clinics, points out that as a result of the war, up to the present time 11 chiefs of the Affiliated Cardiac Clinics, as well as many staff physicians, nurses, and social workers have joined the armed forces. Others are expecting to be called in the near future. In spite of this, none of the Affiliated Cardiac Clinics has been discontinued, according to Dr. Roth.

1944 Reregistration of Physicians in New York State

From the State Education Department in Albany comes the following pronouncement which deserves the attention of all physicians in practice in New York State.—EDITOR

"The 1944 renewal application cards for annual registration will be mailed from the Department of Education on September 20, 1943. In the event that any practicing physician has changed his address without notifying the Department of Education, it is urged that he do so at once so that his renewal application card will be received.

"It is suggested that the application cards be returned to the Department as speedily as possible as the Department has been requested to furnish certain war agencies with lists of practicing physicians.

"A letter or reminder will be mailed to all physicians who fail to renew their registration on or before December 31, as required by statute. This reminder is to be mailed the latter part of January to those physicians who have failed to renew their registration and an additional fee of $1.00 will be assessed."

Rapid and pronounced reduction of stomach acidity

Creamalin promptly reduces stomach acidity. Moreover, the antacid effect is sustained.

With Creamalin there is no compensatory reaction by the gastric mucosa and no oversecretion of hydrochloric acid. Furthermore, there is no risk of producing alkalosis.

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Medicine and the War

Rescue Service of Citizens Defense Corps*

THE Rescue Service of the Citizens Defense Corps is responsible for extrication of trapped casualties at incidents where there are no fires. At incidents in which the majority of casualties are trapped or buried, the Rescue Squads of this Service will assume the duties previously assigned to Stretcher Teams, in addition to performing the technical rescue work. (Operations Letter No. 133, "Organization of Rescue Service.")

Stretcher Teams, however, remain an essential part of the Emergency Medical Service. They have the following important functions:

(*a*) Assisting medical personnel at Casualty Stations in handling and nonprofessional care of minor casualties;

(*b*) Unloading ambulances and assisting in reception of casualties at hospitals; conducting the exchange of stretchers and blankets in order that ambulances may leave hospitals properly equipped;

(*c*) Assisting Mobile Medical Teams in handling casualties;

(*d*) Performing rescue work at incidents not requiring specialized Rescue Squads;

(*e*) Assisting Rescue Squads at major incidents at which many casualties are trapped.

The Chief of Emergency Medical Service should appoint a deputy charged with responsibility for the organization and training of Stretcher Teams.

Team Organization.—A Stretcher Team is composed of a leader and four other persons, preferably men or older boys, one of whom is designated as assistant leader. Team members are derived from the immediate neighborhood of the facility to which the team is attached. No member of a hospital staff who has any maintenance function should be selected for duty on a Stretcher Team.

Number of Stretcher Teams Attached to EMS Facilities.—Stretcher Teams should be attached to each Casualty Receiving Hospital and each Casualty Station. The number of teams attached to a Casualty Receiving Hospital should be determined in consultation with the administrator of the hospital, and should be based on the number of casualties the hospital is prepared to receive and the nature and extent of the duties the administrator expects team members to perform. The group attached to a Casualty Station should consist of two teams on call during the day and two on call during the night. On the basis of a previous Office of Civilian Defense recommendation, there should be one Casualty Station for each 25,000 persons and they need not be nearer than a mile apart (Circular, Medical Series No. 23).

Group and Team Leaders.—Stretcher Teams attached to any single facility of the Emergency Medical Service should be organized under a group leader. Group leaders are responsible, under general direction of the Chief of Emergency Medical service, for the organization and training of teams in their groups. They will conduct and supervise such drills as may be necessary; arrange hours on call; maintain rosters of teams and team members.

Group leaders will be appointed by the Chief of Emergency Medical Service. Team leaders will be responsible to group leaders for the organization and efficiency of individual teams. Leaders should be selected, so far as possible, from employees or residents of the building in which the facility to which they are attached is located. Both group and team leaders should be trained in first aid and stretcher technics. Group leaders should, if possible, have had experience in teaching first aid.

Mobilization.—Mobilization of Stretcher Teams on call occurs on the first audible public alarm. Mobilization of additional teams should be effected as these teams are needed or upon order of the control center. This mobilization should be accomplished rapidly according to a predetermined mobilization plan without recourse to public communication facilities and without requiring use of motor vehicles.

Control and Authority.—Stretcher Teams attached to Casualty Receiving Hospitals are responsible to the administrator of the hospital and are directed by him or such person as he designates. Teams attached to Casualty Stations are responsible to the administrator of the hospital to which the Casualty Station is related or to the physician in charge of the Mobile Medical Team at the Casualty Station when it is activated. At Casualty Stations not related to hospitals, Stretcher Teams are responsible to the physician in charge of the Station.

At incidents, Stretcher Teams are responsible to the physician in charge at the scene. If no physician is present, Stretcher Teams are responsible to the leader of the Rescue Squad, if such a squad is on hand; otherwise, directly to the Incident Officer or Senior Warden.

When needed in the field, Stretcher Teams will be dispatched from Casualty Stations and Casualty Receiving Hospitals on orders from the Control Center.

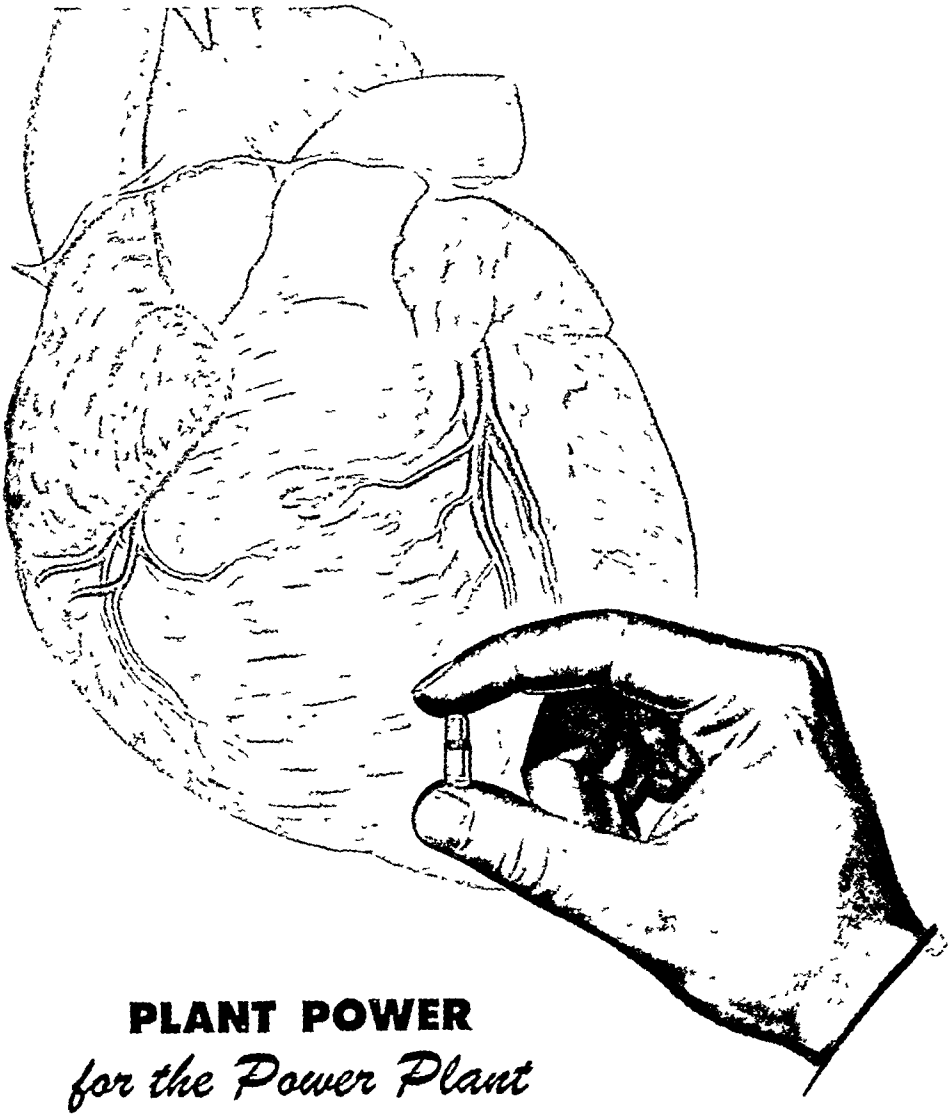
For incidents in the immediate vicinity of a hospital or Casualty Station, the physician in charge of a Mobile Medical Team may send forward a Stretcher Team to the incident on his own initiative.

Training.—(*a*) Preinduction: To qualify for appointment to the Medical Unit of the Citizens Defense Corps Stretcher Team members must meet the requirements of OCD Regulations No. 3, U.S. Citizens Defense Corps, by completing the basic twenty-hour Red Cross first aid course for civilian defense workers (Instructors Manual, ARC 1055) or the standard Bureau of Mines first aid course. If a Red Cross or Bureau of Mines instructor is not available, the course may be given by a qualified person certified by the Chief of Emergency Medical Service as an instructor.

(*b*) Postinduction: After enrollment in the U.S. Citizens Defense Corps as members of Stretcher Teams of the Emergency Medical Service, training is to be continued under general direction of the Chief of Emergency Medical Service in accordance with the training schedule outlined in the textbook, OCD Publication 2215, "Field Care and Transportation of the Injured," which will be distributed shortly by the Medical Division of the Office of Civilian Defense.

[Continued on page 1666]

* Operations Letter No. 134, Office of Civilian Defense.



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Air is excluded by hermetically-sealed gelatin capsules to guard against deterioration—to maintain in DIGIFORTIS Kapseals the most stable form of Digitalis.

Original potency of DIGIFORTIS Kapseals has been continued by use of the International standard and lethal dose frog method of assay. Each Kapseal represents 1 International unit, equal to 1½ grains of International Standard Digitalis, or 1 cc. (15 minims) of Tincture of Digitalis, International standard.

DIGIFORTIS Kapseals are supplied in bottles of 100 and 500. Other Digifortis products include ampoules, tablets and liquids.

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[Continued from page 1664]

OCD Urges Recognition of Health Officials in Civilian Protection Organization

IN ORDER that health and sanitation may be maintained during and after an air raid or other wartime disaster, health officers, with their deputies, division chiefs, and sanitary inspectors, should be members of the U.S. Citizens Defense Corps, the Office of Civilian Defense advises in Operations Letter No. 131, entitled "The Health Department in Civilian Protection."

Commanders of the U. S. Citizens Defense Corps are urged to appoint health officers to their staffs.

Health officers should develop plans for prompt action in emergencies to assure: (1) maintenance of safe water, food, and milk supplies; (2) sanitary disposal of sewage and putroscible waste; (3) sanitation at mass feeding centers, rest centers, casualty stations, billets, and other temporary facilities for war emergencies; and (4) control of communicable disease. Planning should include the mechanism for mobilizing essential personnel during and following an emergency, it is suggested. Another important duty will be to make arrangements for immediate instruction of the public in emergency sanitary measures.

In communities in which the health department does not have sufficient staff to provide sanitary supervision and inspection services in a war emergency, the health officer may select volunteer health deputies and recommend their appointment to the staff unit of the Citizens Defense Corps. The Operations Letter suggests that these deputies be persons with experience or training in public health, sanitary engineering, bacteriology, chemistry, and related fields. Tasks to which they may be assigned include supervision and inspection of disinfection of fractured water mains, pasteurization of milk, and preparation and handling of food at emergency feeding centers.

All health department personnel must complete training in accordance with regulations of the Citizens Defense Corps before they can become members, and, in addition, the health officer may prescribe special technical training for them after they have been duly enrolled.

A section of the Operations Letter is devoted to the place of state health agencies in the civilian protection program. State Defense Councils are urged to obtain the guidance and leadership of the state health officer in the development of an emergency health and sanitation program throughout the state. In states in which other agencies than the health department have responsibilities in health matters, it may be desirable to appoint a health and sanitation committee representing all the agencies concerned with health.

Nurses' Aides Eligible for Civilian Security Benefits

ALL Volunteer Nurses' Aides should be enrolled in the U.S. Citizens Defense Corps, the Medical Division of the Office of Civilian Defense states in a special announcement, Circular Medical Series No. 32.

The Circular explains that questions persist in some localities regarding enrollment, particularly of Nurses' Aides not specifically assigned to Mobile Medical Teams, Casualty Stations, and other field casualty units of the Emergency Medical Service.

The immediate importance of this announcement lies in the fact that Nurses' Aides must be enrolled in the Nurses' Aide Unit of the Citizens Defense Corps, if they are to be eligible for the benefits provided under the War Civilian Security Program of the Federal Security Agency for all members of or trainees for the Citizens Defense Corps who may be injured in line of duty. Nurses' Aides presently working in hospitals and health agencies are considered to be in training for service in care of the wounded in the event of an enemy attack or other wartime disaster. They are therefore eligible for membership in the Defense Corps, and are thus eligible for the benefits of War Civilian Security after enrollment.

The Medical Division has recommended in various publications that Nurses' Aides be admitted to the Citizens Defense Corps when they receive their Red Cross certificates. It is suggested that the local Chief of Emergency Medical Service and the local Nurse Deputy arrange with the Red Cross Nurses' Aide Committee to have the required CDC oath administered at the graduation ceremony. All Nurses' Aides who have completed their training since the program was initiated but have failed to enroll in the Defense Corps should now become enrolled members. Women who are still undergoing their preliminary training as Nurses' Aides, but have not yet graduated, are also eligible for benefits if they are properly registered with the personnel officers of the appropriate Citizens Defense Corps as trainees for the Nurses' Aide unit.

A new arm insigne for outdoor dress, as distinguished from the emblem attached to uniforms, has been recently designed for members of the Nurses' Aide Unit of the Citizens Defense Corps. Nurses' Aides assigned to Mobile Medical Teams and Casualty Stations of the Emergency Medical Service may wear either this new arm insigne or the Medical Unit armband, but they must wear one or the other in order to move during periods of air raid alarm. The arm insigne will be distributed by the Red Cross in the same manner as the sleeve and cap emblem.

"DOCTORS AT WAR"

"Doctors at War," a one-reeler about doctors being trained for war in the Medical Field Service School under conditions of actual warfare, has been released by the Office of War Information Film Unit. The short was filmed at Carlisle Barracks, Pennsylvania, where the doctors, as student officers, are given a concentrated six weeks' course so that they can take their places with the combat troops.

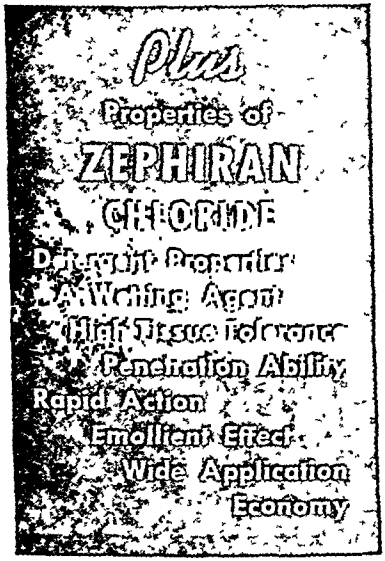
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A HIGHLY POTENT GERMICIDE with a low toxicity index is realized in ZEPHIRAN CHLORIDE, cationic detergent and germicide; a mixture of high molecular alkyl-dimethyl-benzyl-ammonium chlorides.

In an evaluation of germicides for clinical use by Hirsch and Novak,* using the phagocytosis inhibiting technic for determining toxicity, Zephiran Chloride was found to be germicidal in a 1:3970 concentration sterilizing infected blood completely, whereas the phagocytosis inhibiting concentration was shown to be 1:3370. The toxicity index of Zephiran Chloride thus is 0.85 as against an average of 5.2 for 70 per cent and 95 per cent alcohol and 900 for tincture of green soap.

*Hirsch, M. M., and Novak, M. V.: Evaluation of Germicides with Relation to Tissue Toxicity. Proc. Soc. Exper. Biol. and Med., June, 1942.

ZEPHIRAN CHLORIDE . . . Germicide for Surgery, Obstetrics and Gynecology, Urology, Dermatology, Eye, Ear, Nose and Throat, Sterile Storage of Instruments.

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Medical News

Navy Seeks Women Doctors

WOMEN doctors are now eligible for reserve commissions in the Navy Medical Corps, according to an official announcement made on August 10. The Navy Department at the same time started a drive to recruit 600 of them.

Reserve commissions as lieutenant commander, lieutenant, and lieutenant (jg) will be available, with 200 women to be commissioned in each rank, in accordance with first requests made by the Bureau of Medicine and Surgery.

Women doctors had been serving in the Women's Reserve where, even if they were doing regular Medical Corps work, their rank was restricted to that of lieutenant (jg).

The eight women doctors now serving with the Waves will be permitted to transfer to the Medical Corps.

Women doctors will be accepted in the Navy Medical Corps with the same status as male doctors, according to the Navy announcement, but they will be assigned to duty only within the continental limits of the United States. They will not be accepted, however, if they are the wives of Navy m or if they have children younger than 18.

They must meet the same professional requir ments as men and, to avoid undue depletion medical reserves in civilian communities, they al must be approved for military duty by the Procur ment and Assignment Service.

The general requirements for women physician are: For general medical officers, age limit, 21 t 35; for specialist medical officers, 27 to 50. Appli cants must be graduates of accredited medica schools and must have had at least one year's in ternship in an approved hospital. In addition, they must be duly licensed to practice medicine and have membership in a state or local medical society.

An exception is made for women who apply for commissions as general medical officers immediately on completion of medical school, when internship, license, and membership stipulations may be waived. Applicants for specialist commissions must have had at least three years' recent practical experience in a particular field.—*New York Times*

County News

Albany County

Dr. Thomas M. Holmes, of Delmar, has been appointed a member of the medical board of the State Employees Retirement System. He succeeds Dr. Clarence E. Mullens, of Albany, resigned.

A native of Albany and a graduate of Union College and Albany Medical College, Dr. Holmes enlisted in the medical corps of the United States Army in World War I but was lent to the British as a surgeon. He was wounded in France when a shell burst near the dressing station where he was working close behind the front lines.

Dr. Holmes practiced medicine in Bethlehem for a number of years.*

Broome County

Helping to meet an acute shortage of physicians, Dr. John Sassani, one of the few full-time industrial doctors in the Binghamton section, has resumed private practice on a part-time basis.*

Dutchess County

Dr. Louis Lipman, of Arlington, deputy chief and surgeon of the Arlington Fire Department, was honored recently at a reception held at the firehouse. About 60 members and guests attended the party given in honor of Dr. Lipman's recent marriage.

Fire Commissioner Howard Martin presented Dr. Lipman with a set of silver on behalf of company members.*

. . .

Clipped from the *Beacon News* of July 22—

"The *Poughkeepsie Journal* of Wednesday, March 29, 1797, had this news item: 'A meeting of physicians to organize a medical society will be held on May 1, 1797, at John Robinson's in Fishkill.' "

Greene County

Dr. Elwood Weisenburn is now associated with Dr. T. Earl McQuade, Coxsackie physician, and is already easing the pressure in that area due to a scarcity of doctors.

Dr. Weisenburn served his internship at Highland Hospital in Rochester after graduation from Albany Medical College.*

Jefferson County

Dr. George B. VanDoren, now serving his sixteenth consecutive year as health officer for the city of Watertown, has announced that he will retire from that office in October. He will then devote his full time to private practice.

Monroe County

On August 1 Monroe County Medical Society launched a series of radio programs which will continue through next June 27.

The opening program, the 495th consecutive broadcast of the Society, which claims the oldest continuously conducted medical broadcast in the United States, took the form of a roll call of various wartime services of the society.

Dr. Benjamin J. Slater will direct the 500th broadcast on September 5 and on January 3 Dr. Benedict J. Duffy, president-elect of the society, will be the speaker. Dr. Walter C. Allen, chairman of the health education committee, is program director.

Symposiums on various phases of the medical profession will be presented in the series, including war strain, with emphasis on its effect on the heart; new knowledge of medicine; food and nutrition; and scientific progress in the control of tuberculosis, cancer, and diabetes.

In another symposium, important socio-medical community services will be described by directors of these services, including child care and guidance, nursing, and social service.*

* Asterisk indicates that item is from local newspaper.

"don't smoke"...

is advice hard for patients to swallow. May we suggest, instead, *SMOKE "PHILIP MORRIS"?* Tests showed 3 out of every 4 cases of smokers' cough cleared on changing to PHILIP MORRIS. Why not observe the results for yourself?

Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N. Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

REVIEWED

Operative Oral Surgery. By Leo Winter, D.D.S. Second edition. Octavo of 1074 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Cloth, $12.50.

This book should be highly valuable to both practitioner and student. It devotes chapters to chemotherapy, shock, burns, war wounds, dislocation and subluxation of the tempromandibular articulation, and pin fixation for the treatment of fractures.

The volume is replete with many drawings, illustrations, photographs, and x-ray reproductions which do much to clarify and make more valuable the written text.

FLOYD G. REA

The March of Medicine. The New York Academy of Medicine Lectures to the Laity, 1942. Octavo of 217 pages. New York, Columbia University Press, 1943. Cloth, $2.50.

These six lectures have the titles "Tuberculosis"; "The Brain and the Mind"; "The Freudian Epoch"; "Genius, Giftedness, and Growth"; "History of the B-Vitamins"; and the "Newer Knowledge of Nutrition." The lecturers were eminent authorities—Miller, Putnam, Brill, Gesell, Jelliffe, and Carlson.

The skill with which these distinguished men have adapted their language to the laity is something to marvel at. Their readers should greatly outnumber their hearers.

ARTHUR C. JACOBSON

Doctor in the Making. The Art of Being a Medical Student. By Arthur W. Ham, M.B., and M.D. Salter, Ph.D. Duodecimo of 179 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $2.00.

The authors have summarized their experiences as members of an advisory committee to first-year medical students at the University of Toronto. The book is an excellent presentation of a neglected subject and should be on the compulsory reading list of every student, premedical as well as medical.

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[Continued on page 1672]

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REVIEWED

Operative Oral Surgery. By Leo Winter, D.D.S. Second edition. Octavo of 1074 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Cloth, $12.50.

This book should be highly valuable to both practitioner and student. It devotes chapters to chemotherapy, shock, burns, war wounds, dislocation and subluxation of the tempromandibular articulation, and pin fixation for the treatment of fractures.

The volume is replete with many drawings, illustrations, photographs, and x-ray reproductions which do much to clarify and make more valuable the written text.

FLOYD G. REA

The March of Medicine. The New York Academy of Medicine Lectures to the Laity, 1942. Octavo of 217 pages. New York, Columbia University Press, 1943. Cloth, $2.50.

These six lectures have the titles "Tuberculosis"; "The Brain and the Mind"; "The Freudian Epoch"; "Genius, Giftedness, and Growth"; "History of the B-Vitamins"; and the "Newer Knowledge of Nutrition." The lecturers were eminent authorities—Miller, Putnam, Brill, Gesell, Jelliffe, and Carlson.

The skill with which these distinguished men have adapted their language to the laity is something to marvel at. Their readers should greatly outnumber their hearers.

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EDWARD P. DUNN

Gynecology with a Section on Female Urology. By Lawrence R. Wharton, M.D. Octavo of 1,006 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Cloth, $10.

This book is a new textbook of gynecology. A large section on female urology is included because of the frequency and seriousness of complications of the urinary tract in obstetric and gynecologic practice. The author discusses the usual subject matter clearly and concisely and differentiates between accepted beliefs and his own personal opinions. A brief summary appears before each chapter for the use of the medical student and a bibliography at the end for more extensive reading. The text is profusely illustrated.

ALEXANDER H. ROSENTHAL

Blood Groups and Transfusion. Third edition. By Alexander S. Wiener, M.D. Quarto of 438 pages, illustrated. Springfield, Ill., Charles C Thomas, 1943. Cloth, $7.50.

This book in previous editions was a standard work on the subjects of blood group and transfusion, and now it has become a classic in the field.

The need for this new edition was great on account of the recent rapid progress in knowledge, an indication of which is given by the increase in the number of pages of the volume, from 220 pages in the first edition in 1935 to 438 pages in the new edition. Moreover, this field has assumed considerable importance in connection with the war effort. The present edition contains two entirely new chapters, one dealing with the transfusion of stored blood and blood substitutes, the other with the Rh factor and its clinical applications, of which the author was the co-discoverer. In addition, every other section of the book has been extensively revised and some chapters entirely rewritten, so that the book is practically a new one. Certainly any physician who has any occasion to perform blood transfusions and every blood bank owes it to himself and his patients to have this book available for ready reference.

Despite the thoroughness with which the various subjects are discussed, the presentation is clear so that even beginners will find the book easy and pleasant reading. At the same time, the book leaves nothing to be desired by specialists and workers in the field, who with the aid of an adequate index can quickly find the latest available information concerning any aspect of the subjects.

Both the author and publisher are to be congratulated upon the timely appearance of this excellent book, which is one of the finest pieces of medical writing that has come to the reviewer's attention.

MAX LEDERER

A Study of Endometriosis, Endosalpingosis, Endocervicosis, and Peritoneo-Ovarian Sclerosis. By James R. Goodall, M.D. Octavo of 140 pages, illustrated, including 6 color plates. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $5.50.

Any thoughtful gynecologist or pathologist will derive much pleasure and stimulation from reading this book. Goodall has never been afraid to dash boldly into the realism of the fairly well-accepted with ideas of his own. And his clinical research has always followed an original pattern.

His concept of ovarian and peritoneal sclerosis, and stromatous endometriosis is new. The outline of treatment is excellent. An important book.

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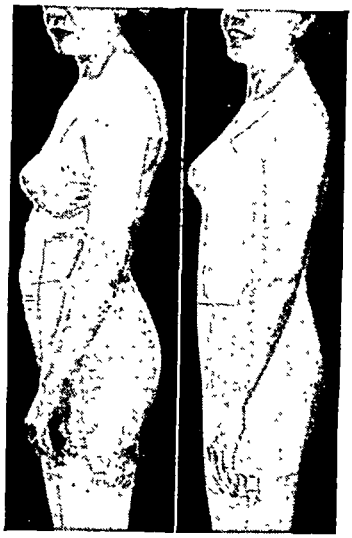
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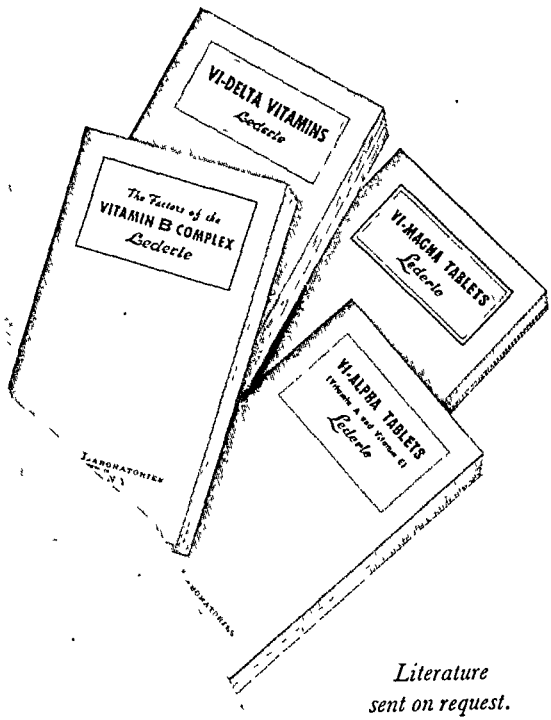
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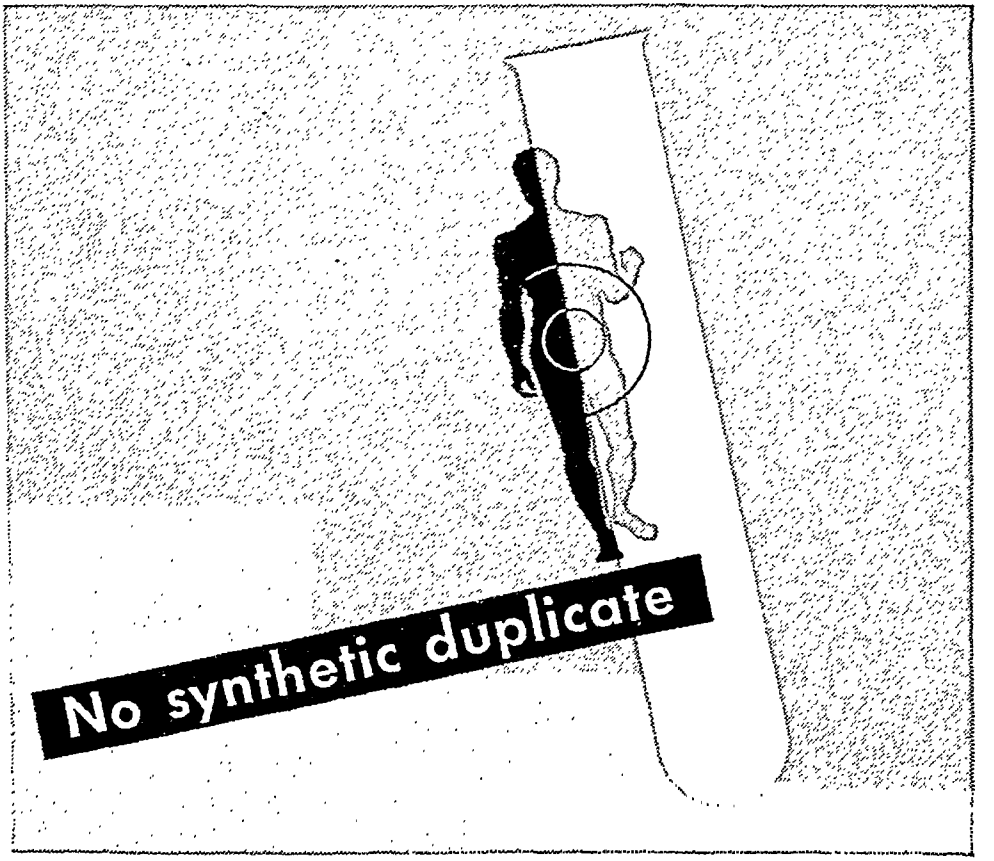


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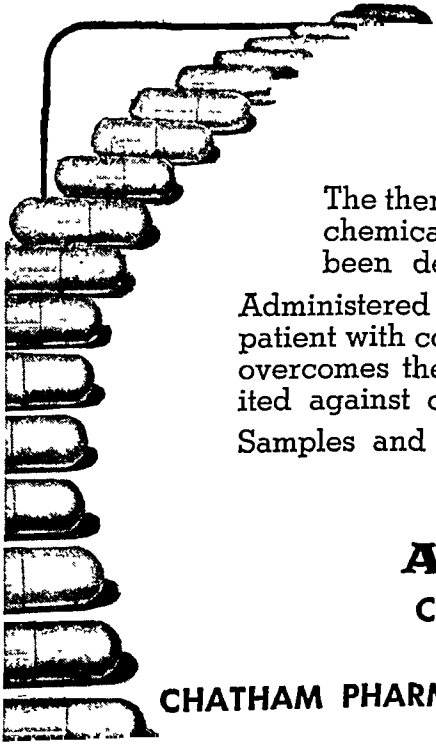
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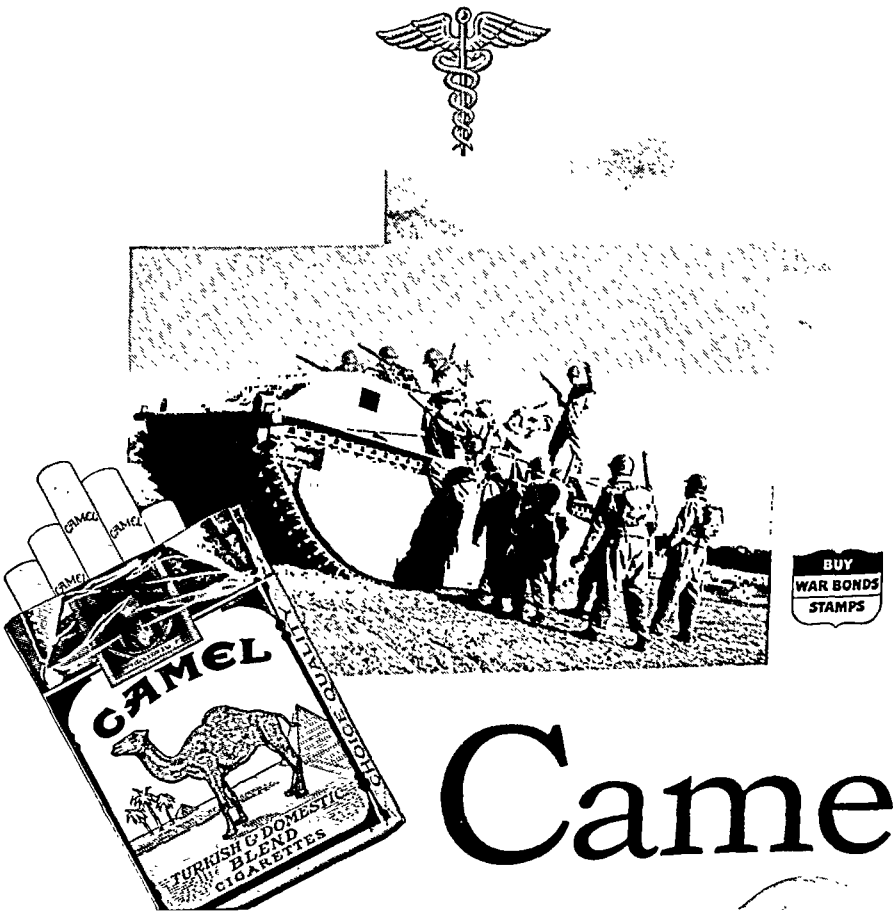
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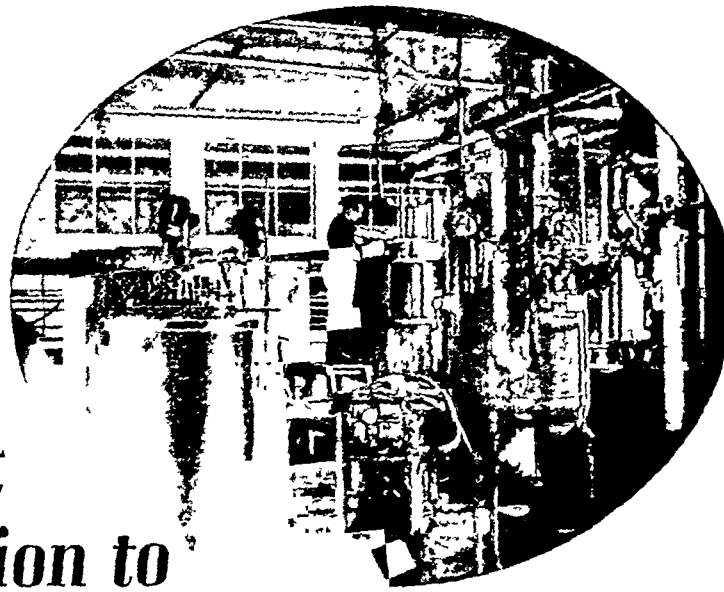
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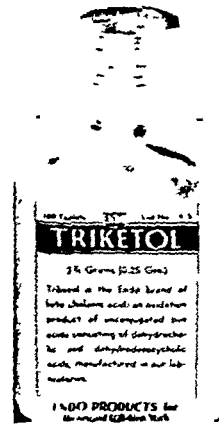


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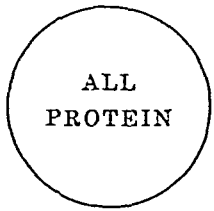
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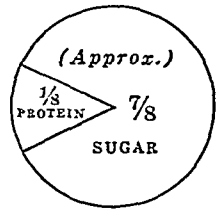
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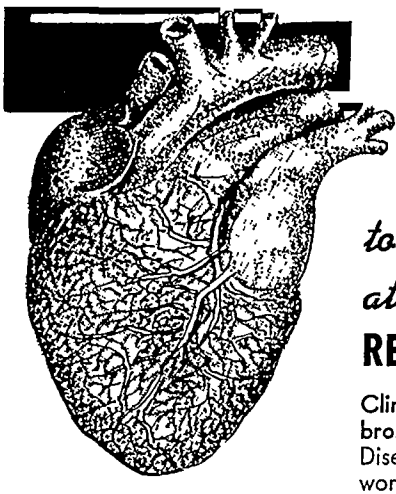
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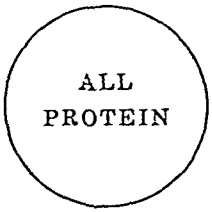
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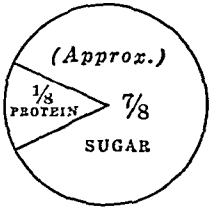
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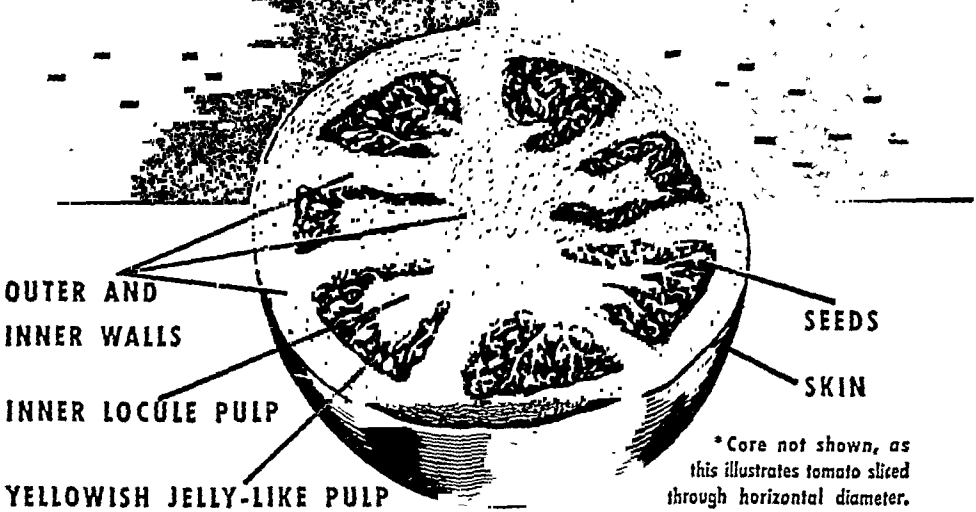
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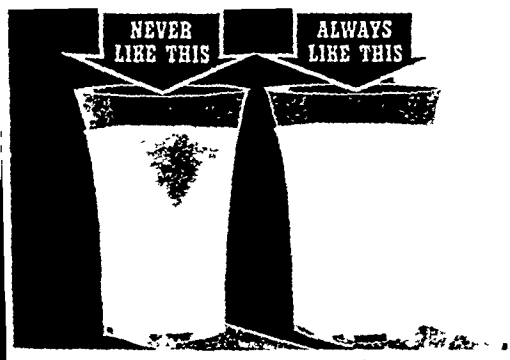
KEMP'S SUN-RAYED TOMATO



*Core not shown, as this illustrates tomato sliced through horizontal diameter.

● Except for skin, seeds and core,* all regions of this tomato are important to you in tomato juice. That's why we use the whole tomato, minus skin, seeds and core, for Kemp's Sun-Rayed brand Tomato Juice. Note proportion of three primary regions pictured above, left. Just right for finest flavor, high nutrition, rich red color and proper consistency. No ordinary field tomatoes these, but a special strain developed through 23 generations of tomato culture. We convert these tomatoes into Kemp's Sun-Rayed by our patented process which insures high retention of vitamins A, B1 and C.

Packed by
THE SUN-RAYED CO.
Frankfort, Indiana
• • •
New England Representative
MORTON OF BOSTON
185 Devonshire Street





NON-SEPARATING

SEDATIVE ANTISPASMODIC

BELLADENAL

Supplied: Tablets—tubes of 20, bottles of 100 and 500

SANDOZ CHEMICAL WORKS, INC. NEW YORK—SAN FRANCISCO

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and Adolescence

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In childhood and adolescence, the total hemoglobin increases with growth, and the store of iron in the body must be maintained proportionately. It is acknowledged that this added need for iron may be difficult to obtain from the food and, consequently, must be supplied as medication. Excellent results are offered by the use of specially prepared iron (easily assimilated ferrous sulphate—Plain or with Liver Concentrate) incorporated in . . .

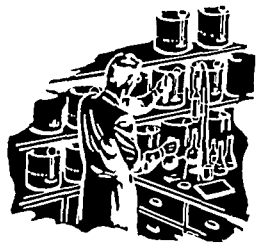
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A Children's Strength



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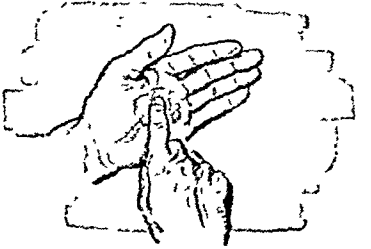
The same clinically-proven formula* supplied for treatment of Bronchial Asthma and certain other allergies in adult cases, is now available in a milder potency for children.

Supplied in capsules only for children—each capsule contains 1½ grs. of Theophylline Sodium Acetate, ¼ gr. of Ephedrine Sulfate and ¼ gr. of Phenobarbitol Sodium. Available on prescription only in bottles of 100 capsules.

*A New Type of Medication to be used in Bronchial Asthma and other Allergic Conditions.—*New Eng. J. Med.* 223:843-846, 1940.

BREWER & COMPANY, INC. *Worcester Massachusetts*

Pharmaceutical Chemists Since 1852



Non-Irritating Bulk

—non-digestible and non-absorptive of vitamins—makes this hydrophilic colloid a favored laxative in colitis

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This highly purified hemicellulose is available in 4-oz. and 16-oz. bottles as Mucilose Flakes and Mucilose Granules.

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Since 1855 . . . ESSENTIALS OF THE PHYSICIAN'S ARMAMENTARIUM

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What to Tell Your Patients about KARO in Wartime

The exigencies of wartime production have not affected the purity, quality and effectiveness of KARO as a milk modifier.

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Since *both* types are practically identical in dextrin, maltose and dextrose content, *either may be used* in all milk mixtures. The slight difference in flavor in no way affects KARO's essential value for prematures, newborns and infants.



How much KARO for Infant Formulas?

The amount of KARO prescribed is 6 to 8% of the total quantity of milk used in the formula—one ounce of KARO in the newborn's formula is gradually increased to two ounces at six months.

CORN PRODUCTS REFINING CO.
17 Battery Place • New York, N. Y.

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An extra instrument for your over-burdened hands

If *one out of every three* physicians is called to the colors the men remaining in civilian practice face the profession's most heroic task.

Now, as never before, *physicians are* entitled to every available aid. Nature created such an adjuvant in the carbonated mineral waters of Saratoga Spa. Around them, under New York State guardianship, facilities were organized for your use.

Many physicians have long recognized the established therapeutic values of the waters in treating conditions where external or internal use of them is indicated. Many physicians realizing that breakdowns in general health follow the heavy strains and pressures of these times, prescribe a stay at the Spa.

Relaxation found in the restful environment of Saratoga brings that relief from tensions which prepares your patients for the full benefit of your continuing medical direction. The Spa Medical Staff does not practice; it only oversees treatments prescribed by you or the local specialist you choose for your patient's stay here.

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SULMEFRIN

(Squibb Stabilized Aqueous Solution *Sulfathiazole Sodium* with *Desoxyephedrine Hydrochloride*)



- ***Relieves Nasal Congestion***
- ***Helps check the growth of many invading micro-organisms***

Search for a safe and effective preparation for use in the relief of nasal congestion and the intranasal treatment of sinusitis has at last resulted in SULMEFRIN*—a combination of a soluble sulfonamide and a vasoconstrictor drug in a form agreeable to use.

SULMEFRIN PROVIDES THESE ADVANTAGES



Quick relief of nasal congestion
Practically non-irritating
Remarkable stability

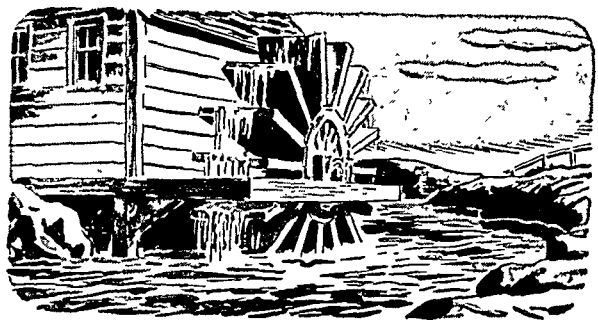
Sulmefrin may be administered by spray or drops, 5 to 10 minims into each nostril, 2 to 4 times daily; or by tamponage, 20 minims on each pack, applied for 15 to 30 minutes once a day.

Sulmefrin is available in 1-ounce and 1-pint bottles.

* "Sulmefrin" (Registered in U. S Pat. Off) is a trade mark of E R Squibb & Sons

For literature address the Professional Service Dept., 745 Fifth Avenue, New York 22, N. Y.

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Slipstream the Bile..... Energize the Wheels

In biliary stasis the regimen of bile acids, feeding of cream, and antispasmodic medication is the practice of many informed physicians. They wash mucus, stagnated bile, and other debris from the bile ducts by giving dehydrocholic acid which has the most marked ability to increase the volume of fluid bile. But there is in dehydracholic acid no aid to the digestion of fats.

The natural bile constituent, desoxycholic acid, does have that power. To administer it concurrently is to adopt the obvious; it gains for the malnourished patient needed energy. The energy that desoxycholic begets by emulsifying fats is about twice that of an equal weight of carbohydrates and their oxidation leaves no waste nitrogen.

IN DOXYCHOL the two bile acids are available in one convenient, potent tablet.

In bottles of 100, 500, and 1000 at good prescriptionists.

Breon also supplies Dehydrocholic Acid Tablets, Desoxycholic Acid Tablets, and Sodium Dehydrocholate 20% Solution in 5 cc ampuls.

George A. Breon & Company

Pharmaceutical Chemists

KANSAS CITY, MO.

BREON

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MANNITOL HEXANITRATE, STRASENBURGH

Pioneered by STRASENBURGH Research

In essential hypertension Maxitate offers your patient three important advantages:

1. 5 to 6 hours of vasodilation;
2. Forestalls attacks of angina pectoris;
3. Absence of commonly encountered nitrite toxic effects.

• Since the vasodilation following Maxitate is gradual, shock is avoided. The vascular relaxation may be extended indefinitely, by regulation of dosage. For excitable patients, Maxitate in combination with Phenobarbital helps calm nervous tension, encouraging maximum and prompt benefit to the patient.

Distinguishable by Color for Convenience of Physician:

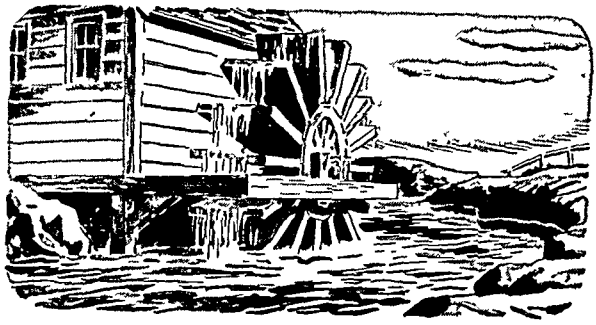
Maxitate, in ¼ and ½ gr. tablets (white)
Maxitate, ½ gr., with Phenobarbital, ¼ gr. (blue)
Maxitate, ½ gr., with Phenobarbital, ½ gr. (pink)
Maxitate, ½ gr., with Nitroglycerin, 1/100 gr. (violet)

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R. J. STRASENBURGH Co.

PHARMACEUTICAL CHEMISTS SINCE 1886

ROCHESTER, NEW YORK



Slipstream the Bile..... Energize the Wheels

In biliary stasis the regimen of bile acids, feeding of cream, and antispasmodic medication is the practice of many informed physicians. They wash mucus, stagnated bile, and other debris from the bile ducts by giving dehydrocholic acid which has the most marked ability to increase the volume of fluid bile. But there is in dehydracholic acid no aid to the digestion of fats.

The natural bile constituent, desoxycholic acid, does have that power. To administer it concurrently is to adopt the obvious; it gains for the malnourished patient needed energy. The energy that desoxycholic begets by emulsifying fats is about twice that of an equal weight of carbohydrates and their oxidation leaves no waste nitrogen.

IN DOXYCHOL the two bile acids are available in one convenient, potent tablet.

In bottles of 100, 500, and 1000 at good prescriptionists

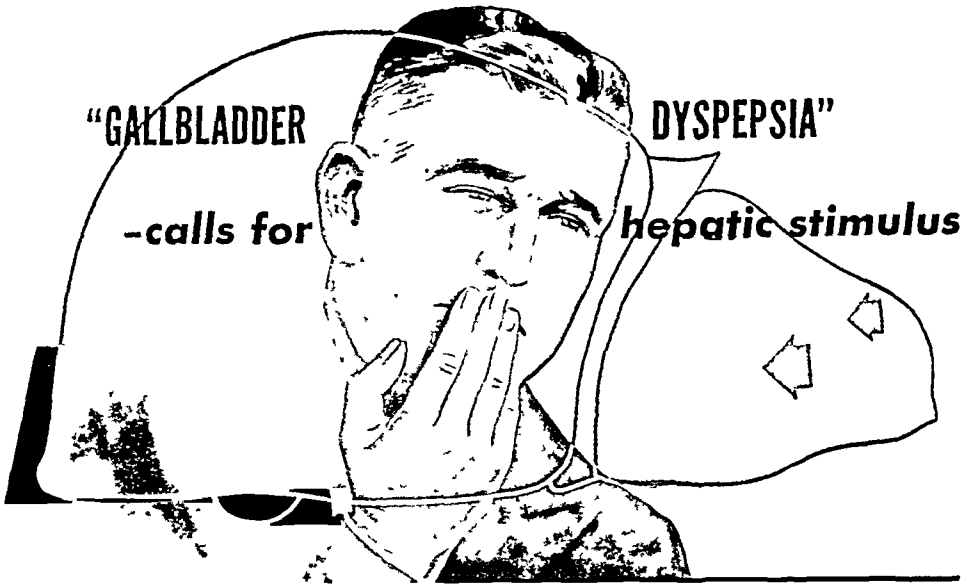
Breon also supplies Dehydrocholic Acid Tablets, Desoxycholic Acid Tablets, and Sodium Dehydrocholate 20% Solution in 5 cc ampuls.

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KANSAS CITY, MO.

BREON



WHETHER biliary stasis arises from inflammation of the gallbladder, or of the biliary ducts, or from liver dysfunction —mere emptying of the gallbladder (through cholagogic therapy) cannot provide adequate relief. The *liver itself* must produce more bile . . . fluid enough to pass the biliary channels with free and effective drainage.

Cholan DH (dehydrocholic acid-Maltbie) is a hydrocholeretic of maximum efficiency—increasing from 2 to 4 times the flow of *especially low-viscosity* bile. Its use may frequently forestall the necessity for surgical intervention by discouraging *gall stone formation or the entrenchment of infection.*

Contra-indications: Occlusive obstruction of biliary tract. Use with caution in acute yellow atrophy, acute hepatitis, eclampsia and progressive jaundice.

COMPREHENSIVE LITERATURE ON REQUEST

Cholan DH is supplied in bottles containing 100, 500, and 1,000 tablets of 3¾ grains each. Also in ampul form, as Cholan DH Sodium (Solution Sodium Hydrocholate)—a 20% concentration in 3 cc. or 10 cc. ampuls, 6 of either to a box.

CHOLAN·DH

(Dehydrocholic Acid Maltbie)

THE MALTBIE CHEMICAL COMPANY

NEWARK, NEW JERSEY

ANNOUNCEMENT

(Reading Time: 2 minutes)

UNDER PRESENT CONDITIONS it is apparent that there may not be enough Camp Supports to fill the increasing demand from physicians, surgeons and patients as quickly as usual.

A year and a half ago we published special announcements to the thousands of dealers who dispense our goods urging them to concentrate their service where it would do the most good to the greatest number who have worn them and need them, and to the physicians and surgeons who rely on them in their practice.

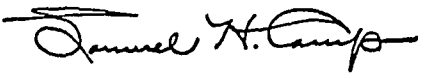
Requirements have mounted steadily since, due to the increasing number of women and older men in war work who require professionally accepted anatomical supports to maintain their health and efficiency. This situation has added heavily to the normal demand for Camp Anatomical Supports needed for postoperative, hernial, orthopedic and other conditions.

With the increasing demand for our supports on one hand and the scarcity of material and labor on the other, the situation is growing more complex and acute for dealers and ourselves.

We wish to assure members of the medical profession—especially those who have communicated with us—that everything possible is being done under prevailing circumstances to maintain evenly rationed deliveries in fairness to our distributors and you.

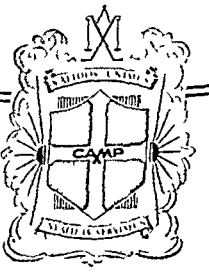
We request your indulgence if service is slower than heretofore. In the event that delayed service hinders treatment of specific urgent cases—we shall do everything in our power to facilitate service upon word from you.

S. H. CAMP AND COMPANY



Caution

● During these trying times substitutions are often resorted to and we respectfully suggest that patients be warned regarding acceptance of inferior substitutions or unscientific garments lest therapeutic objectives become endangered.

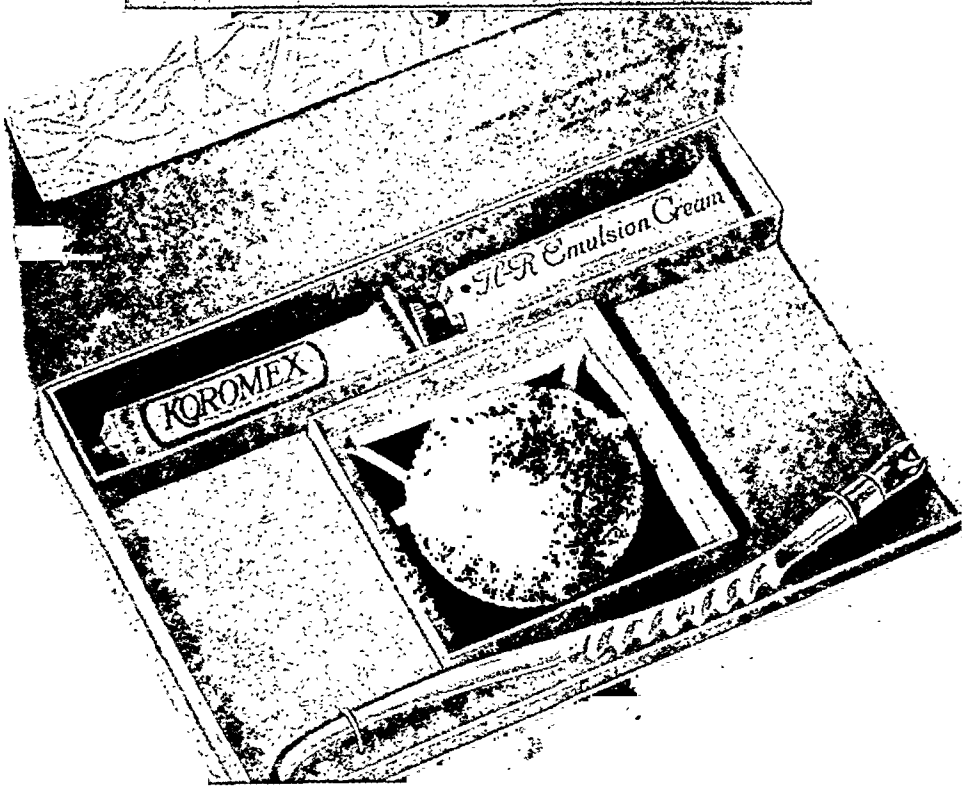


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Koromex Set Complete* is an attractively packaged unit containing the important items used for approved contraceptive technique. Identified by a removable label. To order or prescribe, merely write, "Koromex Set Complete, Diaphragm Size_____".

Each Unit Contains...

KOROMEX DIAPHRAGM—Widely accepted as the outstanding diaphragm in use today. Durable. GUARANTEED FOR 2 YEARS.

KOROMEX TRIP RELEASE INTRODUCER —Specially designed swivel tip facilitates usage. Gauged to take all size diaphragms.

KOROMEX JELLY and H-R EMULSION CREAM—Both preparations have equally high spermicidal value, but differ in degree of lubrication. Both are included so the patient may determine which preparation better meets her requirements and personal preferences.

* *Price of Koromex Set Complete is only that of the Koromex Diaphragm and Koromex Trip Release Introducer*

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What will it be like?

Who knows! Even now plastics are set for the market following Peace Day and Cinderella's glass slipper is practically a reality in the transparent plastic uppers of future evening shoes. Streamlining, too, may even surpass the toeless, heelless creations of today. Or—the styling may revert to less fanciful designs.

But, whatever the turn, there are going to be changes—even in orthopedic shoes, for we are still progressing away from the homely, invalid-looking shoe of yesterday. And whenever such changes have the approval of the medical profession, you can be sure that Pediforme footwear will keep abreast of the times.

℞ **Pediforme**
FOOTWEAR



A SHOE FOR EVERY MEMBER OF THE FAMILY... A SHOE FOR EVERY INDIVIDUAL REQUIREMENT.

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AN *Excellent*

SEDATIVE and HYPNOTIC

The potentiation of the central action of phenobarbital by the belladonna alkaloids (Friedberg, Arch. f. exp. P. & P. CLX, 276) renders possible attainment of desired effects with relatively small doses, thus avoiding "hang over" and other unpleasant side-actions. In contrast to galenical preparations of belladonna, such as the tincture, Belbarb *has always the same proportion of the alkaloids.*

Indications: Neuroses, *migraine,* functional digestive and circulatory disturbances, vomiting of pregnancy, menopausal disturbances, hypertension, etc.

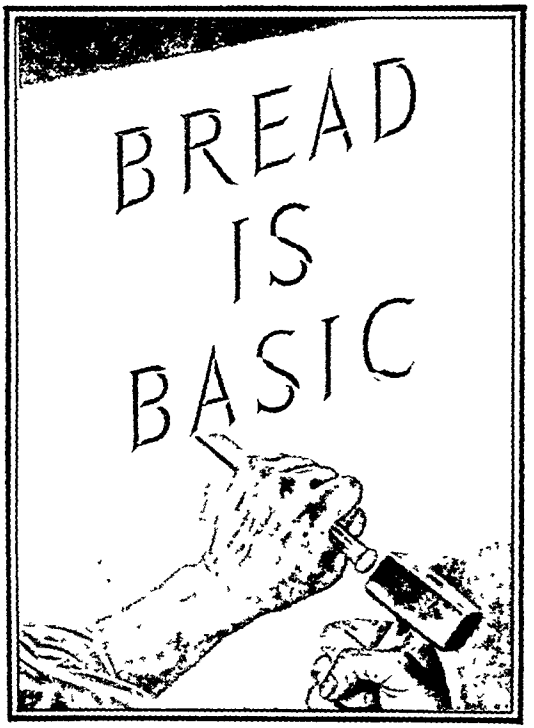
Formula: Each tablet contains ¼ grain phenobarbital and the three chief alkaloids, equivalent approximately to 9 minims of tincture of belladonna.

Belbarb No. 2 has the same alkaloidal content but ½ *grain phenobarbital* per tablet.

CHARLES C. HASKELL & CO., INC., RICHMOND, VIRGINIA

AGAIN *and* AGAIN WE REPEAT

Bread *is basic*



THERE'S good reason back of our repetition of "Bread is basic."

There's good reason why you and your patients see it again and again in magazines.

"Bread is basic" sums up in three easy words the past history of bread—its important place in diets today.

It tells that bread is one of the best sources of food-energy.

It tells that all white bread now supplies extra amounts of thiamin, niacin and iron—that it's better than bread has ever been before.

It tells that the government ranks enriched and whole-grain breads in one of the "basic seven" food groups which should be eaten every day.

It tells that physicians and nutritionists now thoroughly approve and recommend bread.

It tells that bread is plentiful, costs little and helps to make hard-to-get foods go further.

This is why we keep repeating "BREAD is basic."

And we feel you will agree that in times like these of work and stress and shortages, it is wise to encourage the use of more bread.

Throughout the ages, and everywhere, bread has been the basic food.

And as it is made today, it justly deserves increasing recognition as the foundation food of every normal American diet.

ACCEPTED FOR ADVERTISING BY THE COUNCIL ON FOODS AND NUTRITION OF THE AMERICAN MEDICAL ASSOCIATION

Bread *is basic*

with meals . . . and *in* meals

FLEISCHMANN 1868-1943—75 YEARS OF GOOD YEAST FOR GOOD BREAD



No food (except breast milk) is more highly regarded than Similac for feeding the very young, small twins, premature, or infants who have suffered a digestive upset. *Similac is satisfactory in these special cases simply because it resembles breast milk so closely,* and normal babies thrive on it for the same reason. This similarity to breast milk is definitely desirable — *from birth until weaning.*

ACCEPTED AMERICAN MEDICAL ASSN.

A powdered modified milk product especially prepared for infant feeding, made from tuberculin tested cow's milk (casein modified) from which part of the butterfat is removed and to which has been added lactose, olive oil, coconut oil, corn oil, and cod liver oil concentrate

ARMY NAVY E

BUY WAR BONDS!

One level tablespoon of Similac powder added to *two* ounces of water makes *two* fluid ounces of Similac. This is the normal mixture and the caloric value is approximately 20 calories per fluid ounce.

SIMILAC } SIMILAR TO BREAST MILK

M&R DIETETIC LABORATORIES, INC. • COLUMBUS, OHIO

NEW YORK STATE JOURNAL OF MEDICINE

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VOLUME 43 SEPTEMBER 15, 1943 NUMBER 18

Editorial

Political Medicine, III

It would be unwise to underestimate the powerful forces arraigned behind the Wagner-Murray-Dingell bill (*S. 1161*), as the lengthy report of the National Resources Planning Board indicates. It is introduced at a time when the vicissitudes of war, sparing neither man nor the proudest of his works, are burying empires and cities in a common grave; when doctors by the thousands and the tens of thousands are in the armed forces, unable to express their opinion of it; when labor is at the carefree peak of its earning capacity; when so many billions are being spent that the addition of $3,048,000,000 yearly for political medicine and the support of its inevitable bureaucracy seems a mere drop in the bucket. Behind the bill are "planners, social workers, and visionaries who regard the maintenance of our capitalist, free-enterprise democracy as distinctly secondary to 'guarantees' of minimum incomes, a 'minimum standard of living,' and other bounties which are more easily promised than delivered. These groups, using depression figures and relying on a depression psychology, are hard at work peddling propaganda designed (1) to fix the customer's eye on the distressing condition of the weak and unsuccessful, (2) to ignore the extraordinary gains which our system has achieved in the standard of living, and (3) to gloss over the peril to democracy implicit in a vast extension of bureaucratic paternalism."[1]

[1] Saturday Evening Post, August 14, 1943.

Says the *North Carolina Medical Journal* of the report of the N.R.P.B.:

"Some idea of the methods which the perpetrators of the report have used to lay the groundwork for the latest Wagner Bill may be gained by a few quotations from Section VIII of Part 1. This begins with the expected reference to the high proportion of rejections among the draftees. Next it refers to the 'comprehensive report of the Technical Committee on Medical Care' which, in 1938, 'revealed an alarming amount of sickness and ill health,' and states that 'the general findings of this Committee . . . . were confirmed by almost every participant in the National Health Conference, which called together representative citizens and professional experts from all parts of the country.'

"It may be recalled by those who kept up with this Conference just how 'representative' were the 'citizens' and how 'expert' the handpicked professionals.

"Another example: 'Many types of illness, which would be amenable to attack by organized community action, continue to take their toll. Diphtheria and typhoid fever . . . . cost the nation 3,000 deaths in 1940. Tuberculosis will yield only to a more complex program,' etc.

"It is hard to imagine a more flagrant example of intellectual dishonesty than the deliberate ignoring of the statistics, open to any inquirer, which show that in 1900 the death rate from typhoid fever in the United States was 35.9 per 100,000; in 1940, one per 100,000. The death rate from diphtheria in 1900 was 43 per 100,000; in 1940, 1.1. In other words, if there had been no improvement in handling typhoid fever and diphtheria since 1900, there would have been, instead of 3,000 deaths from these diseases in 1940, 102,700. The death rate from tuberculosis has dropped from 280 per 100,000 in 1904 to 43.8 in 1940. All this has been accomplished under the present system of medical practice. Can

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of radiological or any service as a source of profit beyond the normal provision for replacement, department development, and proper proportion of overall costs of operation of the hospital should not be permitted. Nor can the hospital rightfully use per diem charges against all of the hospital patients to support a radiological or other department devoted to creating bargains in radiological or other services in order to make hospital group insurance more attractive. To permit either will result in decrease of the quality of service and increased cost to the patient.

"D. The medical profession must watch with care all proposed plans for medical service and endeavor to prevent the acceptance of any plan which includes medical service under the control of the hospital.

"E. The effectiveness of this program can be attained only if state and county medical societies use their influence on hospitals in their respective localities, and exercise control over the local members of the medical profession.

"F. The public must be educated on what it will mean to them in the way of inferior medical care if these dangerous trends are not curbed.

"G. In the relationships of the medical staff and the board of directors of a hospital there should be no intermediary. The staff should have direct access to the board.

"H. The board of trustees should continue their conferences with national hospital associations and should also endeavor to enlist the support of special medical organizations in education both of the profession and of the public."

The House also adopted the following recommendation:

"Your reference committee recommends that the House of Delegates of the American Medical Association urge the American Hospital Association to withhold approval of the uniform comprehensive Blue Cross contract proposed by the Hospital Service Plan Commission of the American Hospital Association, which includes certain medical services as a part of hospital care and which, if adopted as recommended by the said commission, would virtually compel the addition of medical services to the benefits of those Blue Cross plans and not accede to the demands of the American Medical Association by confining their benefits to hospital service."

It is indeed high time that these matters were taken seriously by the profession and by the public, for considerations of the greatest moment are involved. The hospital has come to be the focus of the public practice as well as of some portion of the private practice of medicine. It is the point at which the *industrialization* of medicine, if we may be allowed the use of that term, has, in part, taken place. It is the point at which the practice of medicine in many of its branches has become, for economic reasons, fixed, tied inevitably to a capital structure sometimes of enormous proportions, a corporate business. It is the point at which hospital service plans and medical service plans converge. Physicians are related to it sometimes as free and independent users of its facilities, sometimes as paid employees of the hospital corporation so that many facets of contractual relations are involved. Says the A.M.A., editorially, of the significance of radiologic practice in the new forms of hospitalization insurance and routine hospital service:

"Doubtless few of those who obtain the services of radiology in hospitals realize that in many institutions the radiologist is working for a small salary and the hospital is deriving a considerable profit from his professional practice. In other institutions what amounts to virtual fee splitting between the hospital and the radiologist is routine technic.

"Certainly it is not to the interest of the patient, who must be given first consideration, that the necessity for radiologic study of his case should be made the occasion for providing excess income for the hospital. If the trend is to be controlled, every new arrangement between a hospital and radiologist and every new plan for a prepaid medical service should be carefully scanned by the county medical society in the area concerned to determine whether or not it violates the fundamental tenets that have been so often iterated and reiterated by the House of Delegates of the American Medical Association.

"The danger to the sick does not lie in the collection of income for the hospital or the radiologist; it is in the inevitable determination that must come in any form of medical service when its practitioners are placed on a basis in which the quality of the service rendered is secondary to the price charged or the method by which the service is supplied."[1]

What is true of radiology is equally true of anesthesiology and pathology. Condemnation by the profession of the practice of selling medical service by hospitals has not by any means stopped the practice. It has been alleged that the "Blue Cross" plans to give medical service with or without the approval of the medical profession. The Associated Hospital Service of New York City is said to state plainly "the intention and the conditions under which services will be rendered."[1]

[1] J.A.M.A. 122: 948 (July 31) 1943.

more be expected in the same length of time from political medicine?

"The New York *Times* of March 14 devotes its leading editorial to a discussion of the report of the National Resources Planning Board, and concludes with this thought:

" 'If the schemes of the N.R.P.B. should ever become law, they are bound to produce a profound change in the psychology of the American people and the American way of life for which we are supposed to be fighting. For they mark the beginning of the Europeanization of America. Perhaps their framers have understood the Zeitgeist better than others, but it might be well to know in advance which way they are leading us. Otherwise we may wake up someday and find that we are the dependent and powerless subjects of a totalitarian state, run by our own brand of New Bureaucrats.' "

We might as well face the fact that *S.1161* proposes, as we have previously said and will say again, a kind of economic and professional slavery under which the civil practice of medicine and the nation's hospitals would be sold down the river in exchange for a mess of political, socialistic pottage, chained forever to the office of the Surgeon General of the U.S.P.H. with the golden chains of the "Unified National Social Insurance System."

Speaking before the Medical Society of the County of Onondaga recently, Dr. Thomas McGoldrick, President of the Medical Society of the State of New York, had this to say, in part:

"We have listened too long to arguments on compulsory sickness insurance to warrant, here and now, their repetition. I may say that, at the present time, appreciation of central government control of business and enterprise is *not* at its peak. The record of this control, especially in the past ten years, over fuel, foodstuffs, rubber, gasoline, and other things, its dealings with certain organized groups, particularly when elections to office are in the offing, and the inefficiencies and frictions of government departments now being revealed, compared with the results achieved during the same period by private enterprise, do *not justify* extension of that authority. We have been told that the British Medical Association, with its experience of compulsory sickness insurance, is now approving the extension of that work in the latest socialized Act, known as the Beveridge Plan. The fact is, the Association has approved *if the entire country, with every industry, every profession, and every means of livelihood be also fully socialized.*

"I like to quote here the opinion of a man who all his life has worked in one of the federal departments of medicine, who has reached the highest position of responsibility and honor in his calling, Rear Admiral Ross T. McIntire, Surgeon General of the U.S. Navy and private physician for the past many years to the President: 'It is my hope that we shall never see medicine subsidized by the Government. . . . I hope that the time never comes when the practice of medicine, or anything that has to do with it, has to come under government control. It would be a disaster to this country; it would be a disaster to medicine. . . .' "

If medical men would prevent this disaster, they will have to bestir themselves. Nobody is going to fight their battles for them. Every legitimate means must be utilized to bring the facts before the American public and its representatives in Congress. For the weight of public opinion will sway the balance. Let everyone do his part, however insignificant, to prevent this disaster to a liberal profession while yet there is time. Tomorrow never comes.

Hospitals in the Practice of Medicine

For some time the entry of hospitals into the practice of medicine by the routes of radiology, pathology, and anesthesiology has been engaging the attention of physicians, who almost unanimously oppose it.

The House of Delegates of the A.M.A. in its 1943 session approved the following resolution with the reference committee (Dr. Louis H. Bauer, chairman) commenting:

"It is high time that the subject be taken seriously, not just for the duration of the meeting of the House but for the other 360 days of the year.

"Your Reference Committee, therefore, recommends:

"A. That the House emphatically reiterate that it disapproves the injecting of a third party into the personal relationship of the patient and the physician, and that hospitals should not be permitted to practice medicine.

"B. That the practice of radiology, pathology, and anesthesiology is the practice of medicine just as much as is the practice of surgery or internal medicine, and that it is only a short step from including the first three in a medical service plan to including the whole field of medicine in such a plan.

"C. That the public should be educated to realize that the hospital-created monopoly-control

OCCUPATIONAL ACNE

Louis Schwartz, M.D., and Samuel M. Peck, M.D., Bethesda, Maryland

Occupational acne is one of the most frequent forms of occupational dermatitis. It occurs among workers exposed to certain chemicals which, when lodged in the pores of the skin, may not only plug the openings and cause the retention of the secretions of the glands but also act as stimulants for the formation of keratin and thus lead to comedo formation and occupational acne.

Occupational acnes occur among the workers exposed to the following chemicals:

Chemical	Occupation
Insoluble cutting oils and to some extent soluble cutting oils	Machinists
Crude petroleum	Oil-field workers, paraffin pressmen, oil refiners
Coal tar	Makers and distillers of coal tar
Heavy coal-tar distillates	Creosoting of wood, roofers, road makers
Coal-tar pitch	Conduit makers, briquette makers, electrical apparatus insulators
Chlornaphthalenes	Electrical insulators
Chlordiphenyls	Electrical insulators
Chlordiphenyloxide	Electrical insulators
Solid chlorbenzols	Chemical workers
Solid chlorphenols	Chemical workers

By far the largest number of workers with occupational acne are those who are exposed to the insoluble cutting oils. This is accounted for not by the fact that the cutting oils are the most potent acne-formers, but because more workers are exposed to their actions and fewer precautions are taken to protect them. The most potent of all these chemicals, as far as their acne-forming properties are concerned, are the chlornaphthalenes, chlordiphenyls, and chlordiphenyloxides. Every worker sufficiently exposed to these three substances for a few months will develop acne-like lesions on the exposed parts unless the most stringent rules of cleanliness for clothes and body are observed. However, fewer workers are exposed to these chlor compounds than to any of the other acne producers. Therefore, the cases of so-called chloracnes reported in the past have been relatively infrequent. The acceleration of shipbuilding that has occurred since the war has increased the use of wires insulated with these chlor compounds and, with this, the number of so-called chloracnes.

The acneform lesions caused by the chlor compounds are more striking than those produced by the other acne-forming substances. Only from the chlor compounds has acne occurred not only in the worker but also in his immediate family and even among those who wash his soiled work-clothes. Although the acnes caused by these organic chlor compounds have been called "chloracnes," yet chlorine gas itself causes no acne-like lesions. Neither do the inorganic compounds of chlorine cause them, either by external contact or internal administration. Nor do the acneform lesions occur among workers with the solvent chlorinated hydrocarbons although all of the solvents can injure the skin by direct contact and can cause systemic poisoning when absorbed. Naphthalene, diphenyl, benzol, or phenol without chlorination do not cause acneform lesions. Only when they are combined with chlorine do they have this effect upon the skin. While benzol and phenol alone can cause systemic poisoning, naphthalene and diphenyl have only been observed to cause it when combined with chlorine. Moreover, only the highly viscid or amorphous solid combinations of these substances have been observed to cause acneform lesions.

Solid Chlornaphthalenes

These chemicals are made by the chlorination of naphthalene, the hydrogen of the naphthalene being replaced by chlorine. Any number of the hydrogen atoms can be replaced, forming mono-, di-, etc., chlornaphthalenes. Those that cause occupational acnes begin with trichlornaphthalene and go on to higher chlorinations of naphthalenes and are used as dielectrics on condensers and insulators of wires. They may be combined with the chlordiphenyls.*

Workers engaged in manufacturing the chlornaphthalenes, those engaged in coating wires or condensers with it, and those who strip wires insulated with it are the ones who have been found to be affected with acne. Some workers engaged in coating wires and condensers with it have been reported to have died of yellow atrophy of the liver.[1,2,3,4]

Workers with the chlornaphthalenes usually develop acne on the face after a month or more of

Read by invitation at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 5, 1943.

From the Dermatoses Investigations Section, Division of Industrial Hygiene, National Institute of Health, U.S. Public Health Service.

Medical Director and Senior Surgeon (R), respectively, of the U.S. Public Health Service.

* Known by the trade name "Halowax." Under this trade name are included many combinations for insulating, some of which do not contain chlorinated hydrocarbons.

These are matters of grave import. They cannot be settled by wishful thinking. Cost of medical and hospital service to the public is involved, as well as the quality of medical service. Whatever is for the best interest of the patient should govern and will probably do so in the long run if the counsel of the profession is heeded. It has not always prevailed in the past. In the present there seems to be a tendency to brush it aside as outmoded. Perhaps reasonable counsel will prevail eventually.

Postgraduate Education

This year, as in the past, the Council Committee on Public Health and Education of the Medical Society of the State of New York, in cooperation with the New York State Department of Health, has prepared for distribution to county medical societies and hospital staffs a *Course Outline Book* announcing the programs available for postgraduate medical education.

At present, the Committee on Public Health and Education is not prepared to announce a formal course on Industrial Health but will arrange for one on request and will also provide a speaker for a special single session or as a part of any of the formal courses.

The Dental Society of the State of New York and the Medical Society of the State of New York have a Joint Committee on Dental Health. This Committee, in cooperation with the New York State Department of Health, has arranged an interesting and informative program which is now available.

In addition to these subjects, speakers are available for single meetings for a discussion of the following: cancer, obstetrics, orthopaedics, pediatrics, public health, syphilis, tuberculosis, and other communicable diseases.

For most of the instruction, any of the lecturers will, upon request, substitute a clinic for the lecture if appropriate patients and facilities are available. This information must be given at the time the request for instruction is made.

Occasionally a county society, hospital staff, or some other medical group desires a program which is not specifically mentioned in these announcements. Should the program, whether clinic, demonstration, lecture, or a combination, be one which the Committee can arrange, they will be glad to do so upon request.

Many new programs have been added and the already broad scope of subjects has been considerably increased. One interesting and timely addition is the Teaching Day on Poliomyelitis. This presentation is divided into four parts:

1. Epidemiology of poliomyelitis. The scientific knowledge on this subject will be reviewed and brought up to date and special consideration will be given to more recently developed concepts, such as tonsillectomy and adenoidectomy as precipitating factors, and the role of sewage as a possible factor in transmission.
2. Clinical features—pathology, diagnosis, and general treatment. All aspects of this subject will be reviewed. The newer work on the spread of the virus in the body and its possible clinical significance will be discussed. The question of the role of the respirator in therapy will be considered.
3. Physical therapy in the acute and convalescent stages. Particular emphasis will be given to the Kenny Method. The significance of muscle spasm in the clinical picture of poliomyelitis will be discussed, the technic of detecting it will be described, and currently accepted recommendations regarding the extent and duration of hot-pack treatment will be outlined. The accepted principles and technic of muscle re-education will be discussed.
4. Orthopaedic measures. The prevention of deformity by reduction of muscle spasm and by control of muscle imbalance will be considered. The current status of rehabilitative procedures (muscle re-education and other physical therapy) and of reconstructive and stabilizing surgery in the residual stage will be discussed.

With the increased incidence of the infectious diseases now being noted in various parts of the country, the program as planned for poliomyelitis should prove to be of exceptional interest and timeliness.



FIG. 1. Acne from chlornaphthalenes and chlordiphenyls (Halowax).

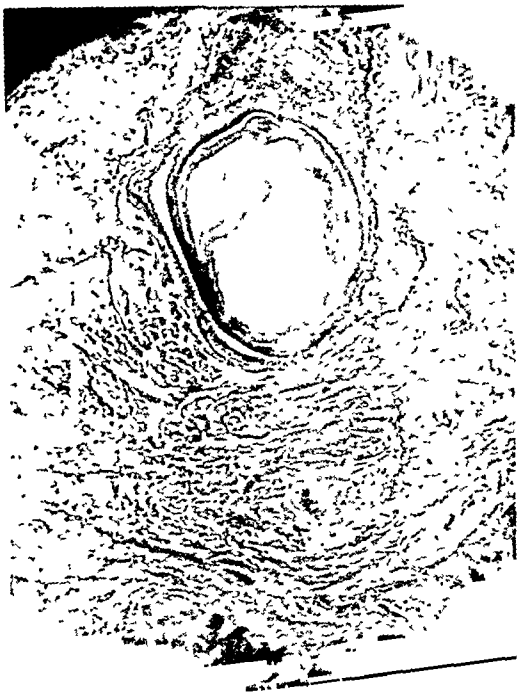


FIG 2. Lesion produced by chlornaphthalenes and chlordiphenyls. Large sebaceous cyst filled with keratinous material.

That the acne-like lesions produced by these compounds are caused by contact is borne out by the fact that the lesions occur on the parts exposed either directly to the substances themselves or to clothes soiled with them. Experimental local reproduction of the lesions has been accomplished by long-continued application of these substances.[5,6]

The mechanism of the formation of comedones and cysts is probably as follows: The fine particles of these chlor compounds arising from the actual substance or condensation on the skin from hot vapors and solutions mechanically plug the pores and lead to the formation of a comedo by the keratogenous action of the material on the endothelial lining of the gland. As this action continues it leads to the formation of the cyst.

Histopathology of Acne from Mixture of Chlornaphthalenes and Chlordiphenyls.—The histology has been described in previous publications.[7] Characteristic of the pathologic picture was the sebaceous cyst rather than the comedo. In sections from typical lesions many large sebaceous glands can be seen, some of them forming huge cysts filled with keratinous material and very little sebaceous material (Fig. 2). Associated with such cysts are wide follicular openings filled with keratinous material and hyperplastic follicular walls. Cocci are not evident in the follicular plugs. Just as in acne vulgaris, foreign-body granulomas occur. They are due to the same mechanism—a rupture of the wall of a cyst and contact of the sebum with the collagen. When this occurs, the same type of foreign-body granuloma as that seen in acne vulgaris is noted—that is, foreign-body giant cells or Langerhans' cells, leukocytes, lymphocytes, and fibroblasts. Leukocytes can also be seen in the comedo itself. The striking feature, however, is the cyst formation with keratinization which extends to include the cyst wall.

Histopathology of Chlordiphenyloxide Acne.—In the sections which we have studied,* the follicular hyperkeratosis with the enlargement of the follicular openings and keratinous material filling the orifice was much more prominent than the changes in the sebaceous glands, evidently young lesions. In such markedly large follicular openings many lanugo hairs were sometimes seen

* These sections were made by Earl D. Osborne, M D., Buffalo, from cases which the authors saw with him.

TABLE 1.—Differential Diagnosis of Acneform Dermatoses

Acne form Lesions Due To	Age	Common Site	Clinical History	Clinical Characteristics	Histologic Features
Acne vulgaris	14–25 years	Face Shoulders Back Chest	Nothing specific, no industrial exposure	Comedones, follicular papules and pustules skin greasy and usually associated seborrhea capitis	Widely distended follicular orifice filled with keratinous material and sebaceous material Cocci in keratin plug Sebaceous glands hypertrophied Foreign body granuloma may be present
Cutting oil Soluble (rare) Insoluble Crude petroleum	Any age	Usually on exposed parts Extensors of forearms and thighs in contact with soiled clothes	Occupational exposure, such as in machinists in oil fields and oil refineries, and paraffin pressmen	Folliculitis, pustules, furuncles, and even carbuncles Inflammation around and in acne like lesions Comedones on fingers, back of hands forearms, and back of neck	Comedo formation but inflammatory reaction around hair follicles and in epidermis and throughout cutis is a striking feature No cocci seen
Coal tar Heavy coal-tar distillates Coal-tar pitch	Any age	Usually on extensor surfaces of arms and thighs and where soiled work clothes touch skin	Found in makers and distillers of coal tar, in workers creosoting wood and in roofing and road workers Workers such as conduit makers, briquette makers	Melanosis, comedones, and small yellowish cysts Not inflammatory except when scratched and infected	Melanin in epidermis and in chromatophores below it Relatively little inflammatory reaction No cocci Widened follicular openings plugged with keratinous material Cysts filled with keratinous and some sebaceous material
Chlornaphthalenes Chlordiphenyls Chlordiphenyloxide	Any age	Face, back of ears, shoulders, abdomen, around navel, groin, genitalia	Occupational exposure in the manufacture of chemicals for insulating wires and condensers Electricians using heat and flame-proof wires machinists exposed to cutting oil containing chlorinated hydrocarbons	Comedones not so prominent as straw - colored cysts Not inflammatory except when secondarily infected	Cystic lesions predominate, with the absence of cocci in the keratinous material filling widened follicular openings Otherwise can resemble acne vulgaris but cysts have more keratin than sebaceous material
Solid chlorbenzols Solid chlorphenols	Any age	Face Anterior surface of body	Occupational exposure in chemical workers	Comedones not prominent Cysts less prominent than from chlornaphthalenes There may be an inflammatory allergic dermatitis	Except for allergic dermatitis, essentially that of the chlornaphthalenes

exposure. The covered parts of the body are also often affected because of contact with soiled workclothes. It is not at all unusual to find comedones and acne-like lesions around the umbilicus, the thighs, and in the groin.

The individual lesions may be from pinhead to pea size. They are pale, straw-colored cysts and usually do not show inflammatory changes, unless they have been infected by scratching or other trauma (Fig. 1). They usually remain stationary in size after a few months and show no tendency to involution. While secondary infections resulting in pus formation may occur, they are not nearly so frequent as they are in acne vulgaris.

Chlordiphenyls

Diphenyl ($C_{12}H_{10}$) is a light-yellow crystalline solid made from benzol. It is chlorinated in a manner somewhat similar to that described for naphthalene The chlordiphenyls* are dielectrics and may be used alone or in combination with the chlornaphthalenes for this purpose Workers who are exposed to them develop lesions similar to those described under the chlornaphthalenes.

Chlordiphenyloxide

Chlordiphenyloxide is a light, straw-colored semisolid compound made by chlorinating diphenyloxide ($C_{12}H_8O$) It is used as a dielectric and causes, in workers who are exposed to it, acne-like lesions similar to those described under the chlornaphthalenes

* Known by the trade name Arachlor

the wells are pumped, it is often necessary to remove the casing from the well in order to clean it and the pumps. However, even among such workers, acneform lesions are much less frequent than they are among workers who use specially treated mineral oils for industrial purposes.

There are keratotic lesions seen on the skin of workers in oil fields located in tropical or subtropical climates. These are as likely to be due to the solar radiation as to contact with the oil.

Cutting Oils

Cutting oils are divided into two classes: the soluble and the insoluble.

Soluble oils usually consist of sulfonated petroleum oils highly diluted with water and are used mainly for cooling the cutting tool. The oil is added for its antirust properties. Although acneform lesions occur on workers exposed to the soluble cutting oils, they are nevertheless infrequent as compared to those seen among workers with the insoluble cutting oils.

The insoluble cutting oils are by far the principal causes of so-called occupational acnes (and folliculitis). The oils are universally used on machine tools. Their composition varies according to the type of machinery that they are used for and according to the secret formulas of their manufacturers. However, basically they usually consist of a large percentage of a more or less refined petroleum oil to which are added a comparatively small amount of animal or vegetable oil (so-called lard oil), sulfur, and an inhibitor for the purpose of preventing the deterioration of the fatty oil content. To some oils a chlorine compound may be added.[7]

Most of the cutting-oil acnes occur on the extensor surfaces of the forearms and the thighs because the men work with bare arms and lean against the machines and because the anterior surface of the thighs are in contact with the oil-soaked trousers.

The lesions usually begin as a folliculitis. Inflammatory reactions are the rule in contradistinction to the acneform lesions from tar and chlorinated hydrocarbon. Comedones are often present, but so are pustules, furuncles, and even carbuncles (Fig. 5). It has long been thought that the inflammation was caused by pathogenic bacteria in the cutting oils, but repeated attempts to culture pyogenic organisms from these oils have failed. Secondary infections of the lesions can occur but not from bacteria in the oils.* Rather, they occur from the bacteria on the skin or on the clothes (see Table 1).

From oils which contain solid chlorinated hydrocarbons, acneform lesions can appear which



FIG. 4. Histopathology of pitch acne. A comedo is seen. There is melanin in epidermis in chromatophores.

are similar to those described under the chlorinated hydrocarbons, especially if the cutting operation generates sufficient heat to vaporize the chlorinated hydrocarbon.

The folliculitis caused by cutting oils is due either to the sulfur, the chlorine, the inhibitor, or the sulfur dioxide, hydrogen sulfide, or other compounds generated by the heat of the cutting operation.

Allergic eczemas may occur because of sensitivity to any of the ingredients in the cutting oil. These manifest themselves in the form of a dermatitis and not an acne. Its occurrence is relatively infrequent. The sensitivity can be demonstrated in such cases by patch testing with the oil. A folliculitis may be produced if an insoluble cutting oil is permitted to remain on the skin under a patch for many days, but this is not a reaction of sensitivity.

Histopathology of Oil Folliculitis (Acne).—Three sections were studied: What seemed to be a typical oil folliculitis with a pustular reaction on the anterior thigh; a comedo on the thigh which did not look especially inflammatory; and an inflammatory papule surrounding a hair follicle on the back of the hand.

* Most insoluble cutting oils are sterile as far as skin pathogens are concerned



FIG. 3. Acneform lesions from coal-tar pitch.

so that several follicles seemed to have a common opening. The surrounding epidermis also showed a hyperkeratosis but no acanthosis. Around many of these hypertrophied follicles, especially when the hairs were of the more adult type, there was an inflammatory exudate, consisting of lymphocytes, polymorphonuclears, and eosinophils. While clinically the same yellowish cyst-like lesions were seen, in many of the cases the sections represent changes in very early lesions. Otherwise the histology is like that of acne from chlorinated naphthalene compounds.

Coal Tar, Coal-Tar Pitch, and Heavy Coal-Tar Distillates

From the volatile substances derived from the distillation of coal there are taken off benzol, toluol, solvent naphtha, and ammonium sulfate. The remaining product is subjected to fractional distillation and is divided into light, medium, and heavy coal-tar oils. The residue after distillation is known as coal-tar pitch.

Workers in coal-tar plants sometimes develop acneform lesions but not so frequently as do workers who handle the heavy coal-tar distillates and coal-tar pitch. This is true because the distillation process is almost totally enclosed and only a few workers come in contact with that portion of the coal tar that is active in producing acneform lesions. Melanosis and photosensitivity, however, occur fairly frequently among workers who break up the coal-tar pitch and among those who come in contact with the heavy oils.

In manufacturing processes in which heavy coal-tar oils and coal-tar pitch are used, there is high incidence of acneform lesions, melanosis and photosensitization. In such manufacturing processes as in conduit making, where paper cylinders are impregnated with coal-tar creosote in roofing, where paper impregnated with heavy coal-tar distillate is handled, and in road making where coal-tar pitch is heated, the incidence of acneform lesions, photosensitivity, and melanosis is high.

The acneform lesions caused by coal tar and its distillate are accompanied by melanosis. The individual lesions are smaller than those caused by the chlorinated hydrocarbons, but they still have the same essential characteristics (Fig. 3). The distribution of the lesions, however, is somewhat different. They usually affect the face, the arms, and the thighs, rarely, if ever, are they found around the umbilicus, in the groin, or other regions where acne-like lesions occur from exposure to the chlorinated hydrocarbons. The keratogenous changes caused by coal tar and its distillates sometimes go on to epithelioma.

Histopathology of Pitch Acne.—Three lesions were studied: A comedo from the chest, a papule on the back of the left arm surrounding a comedo, and a lesion on the left thigh which appeared clinically as an inflammatory papule In each instance the predominant lesion was a comedo with its wide follicular opening filled with keratinous material and having thickened walls. The epidermis seemed normal. No cocci could be seen in this keratinous material. There was very little surrounding inflammation. The melanin formation was a striking feature. It was not only found in the basal cells and in the cells above them but it was also found in chromatophores just below the epidermis (Fig. 4). No foreign-body granuloma was seen in any of the sections. Enlarged sebaceous glands were not a striking feature

Crude Petroleum and Cutting Oils

Crude petroleums have a varied composition depending upon their source. For chemical purposes they can be classified as follows: paraffin base, naphthenic base, asphaltic base, and mixed bases. The different varieties of crude petroleum however, have many substances in common —namely, a mixture of hydrocarbons, nitrogen, oxygen, sulfur, and organic and inorganic substances held in suspension or solution.

The workers employed in oil fields where the wells are free-flowing are not so frequently affected by dermatoses as are those employed in fields where there is pumping. This is because in free-flowing wells or gushers workers have comparatively little contact with the oil, whereas if

the wells are pumped, it is often necessary to remove the casing from the well in order to clean it and the pumps. However, even among such workers, acneform lesions are much less frequent than they are among workers who use specially treated mineral oils for industrial purposes.

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The insoluble cutting oils are by far the principal causes of so-called occupational acnes (and folliculitis). The oils are universally used on machine tools. Their composition varies according to the type of machinery that they are used for and according to the secret formulas of their manufacturers. However, basically they usually consist of a large percentage of a more or less refined petroleum oil to which are added a comparatively small amount of animal or vegetable oil (so-called lard oil), sulfur, and an inhibitor for the purpose of preventing the deterioration of the fatty oil content. To some oils a chlorine compound may be added.[7]

Most of the cutting-oil acnes occur on the extensor surfaces of the forearms and the thighs because the men work with bare arms and lean against the machines and because the anterior surface of the thighs are in contact with the oil-soaked trousers.

The lesions usually begin as a folliculitis. Inflammatory reactions are the rule in contradistinction to the acneform lesions from tar and chlorinated hydrocarbon. Comedones are often present, but so are pustules, furuncles, and even carbuncles (Fig. 5). It has long been thought that the inflammation was caused by pathogenic bacteria in the cutting oils, but repeated attempts to culture pyogenic organisms from these oils have failed. Secondary infections of the lesions can occur but not from bacteria in the oils.* Rather, they occur from the bacteria on the skin or on the clothes (see Table 1).

From oils which contain solid chlorinated hydrocarbons, acneform lesions can appear which



FIG. 4. Histopathology of pitch acne. A comedo is seen. There is melanin in epidermis in chromatophores.

are similar to those described under the chlorinated hydrocarbons, especially if the cutting operation generates sufficient heat to vaporize the chlorinated hydrocarbon.

The folliculitis caused by cutting oils is due either to the sulfur, the chlorine, the inhibitor, or the sulfur dioxide, hydrogen sulfide, or other compounds generated by the heat of the cutting operation.

Allergic eczemas may occur because of sensitivity to any of the ingredients in the cutting oil. These manifest themselves in the form of a dermatitis and not an acne. Its occurrence is relatively infrequent. The sensitivity can be demonstrated in such cases by patch testing with the oil. A folliculitis may be produced if an insoluble cutting oil is permitted to remain on the skin under a patch for many days, but this is not a reaction of sensitivity.

Histopathology of Oil Folliculitis (Acne).—Three sections were studied: What seemed to be a typical oil folliculitis with a pustular reaction on the anterior thigh; a comedo on the thigh which did not look especially inflammatory; and an inflammatory papule surrounding a hair follicle on the back of the hand.

* Most insoluble cutting oils are sterile as far as skin pathogens are concerned



FIG 5 Oil acne on forearms

1. Pustular Folliculitis from the Thigh (Three Months' Duration): There was a follicular hyperkeratosis as well as a generalized hyperkeratosis and acanthosis throughout the section. The mouth of the follicle was widened, and it was filled with keratinous material. The walls of the follicles were also hypertrophied. Around such follicles there was a marked inflammatory exudate consisting of leukocytes and lymphocytes. On occasions accumulations of lymphocytes and leukocytes could also be seen forming small abscesses deep in the cutis. Even some of the sweat glands showed involvement by invasion of their walls with leukocytes and an inflammatory reaction consisting of edema and an accumulation of lymphocytes and leukocytes around them. The sebaceous glands did not seem to be hypertrophied. No bacteria could be found.

2. A Comedo of the Thigh: The section showed a number of large follicular openings filled with keratinous material. The epidermal walls of the openings were hypertrophied. There is a marked inflammatory reaction around the hair follicles. The cutis for quite a distance from the follicle showed areas of inflammatory reaction with aggregations of leukocytes and lymphocytes The capillaries and lymphatics were dilated and were found to be engorged with white cells. Adjacent to the comedo could be seen a small epidermal vesicle filled with leukocytes (Fig 6) No bacteria could be found

3. Typical Oil Folliculitis on the Back of the Hands: There were a widening of the follicular opening and a thickening of its walls, and the mouth of the follicle was filled with keratinous material. The surrounding epidermis showed an acanthosis and hyperkeratosis. Around the follicles and diffusely throughout the cutis there was a marked inflammatory reaction, which in some instances extended to the deeper layers of the cutis. The sweat glands were not involved, but there was a striking absence of sebaceous gland hypertrophy.

In contradistinction to what has been seen in the changes due to pitch and the chlorinated hydrocarbons, the process in oil folliculitis was much more inflammatory, not only around the involved hair follicles but also in the cutis quite a distance from the follicles. While there was a stimulus to keratin formation, just as in other acneform lesions previously described, it was more extensive and there was acanthosis of the surrounding epidermis. Pustule formation could



FIG. 6. Section of a follicular lesion on thigh produced by insoluble cutting oils. Marked inflammatory reaction adjacent to a follicle with an epidermal vesicle filled with leukocytes.



FIG. 7. Section of chloracne from chlorinated cutting oils.

be seen in the epidermis, as well as the formation of small abscesses in the deep cutis. The sweat glands were involved as part of the general inflammatory reaction. No cocci were demonstrable in any of the sections. This fact, plus the previous observation that the insoluble cutting oils are sterile in so far as pus-forming bacteria are concerned, demonstrates that oil folliculitis is due to the chemical composition of the insoluble cutting oils and not to bacteria, which they are said by some to contain.

Chlorinated Cutting Oils—The lesions from the chlorinated cutting oils combine the characteristics of the lesions seen after exposure to the chlorinated hydrocarbons and those described as oil folliculitis. The histopathology also is a combination of both.[7]

Prevention

The prevention of occupational acnes can be divided into (1) general measures and (2) personal measures:

1. The manufacture of the chlorinated hydrocarbons and the coating of wires and condensers with insulating materials containing the chlorinated hydrocarbons should be done by totally enclosed processes so that the fumes of the insulating substances and of the solvents, if any are used, do not come in contact with the workers.

2. The workers should be provided with clean coveralls and underclothes daily. These should be laundered at the plant and cleaned in such a way that no chlorinated hydrocarbons remain on them.

Shower baths after work should be compulsory and supervised, and there should be sufficient shower facilities provided so that the workers are not unduly delayed after work. Suitable cleansers should be provided to remove efficiently the insulators from the skin The synthetic wetting-agents are said to be better for this purpose than ordinary soaps.

A suggested cleanser is: duponol or nacconol or santomerse—2 per cent; and a sulfonated oil—castor, peanut, soy bean, corn, or linseed—98 per cent.

A scrubber of corn meal may be added to this or may be available for use as needed in conjunction with it. A mixture of butyl stearate and sulfonated castor oil has also been suggested.[8]

If exposure of the face and neck to fumes or contact with soiled hands is unavoidable, trans-

parent hoods covering the head and neck can be provided. These can be made of cellophane, pliofilm, or other transparent resin film.

If for any reason these cannot be had, protective ointments of the invisible glove type may be used. Types 2a and 2b, and type 4, as described by Schwartz,[9] are suitable for this purpose.

Periodic liver function tests should be performed every month on the workers. In addition to this, monthly dermatologic examinations should be made to detect early evidence of acne.

The above protective measures should also apply to electricians and others who work with wire and condensers insulated with the chlorinated hydrocarbons.

Workers with coal tar, heavy coal-tar distillates, and coal-tar pitch should be protected against the tar fumes, if any, by exhaust ventilating apparatus. The preventive measures as to cleanliness and clothing described above also apply to these workers.

A protective application of a light screen to the face is advisable for use by those who have become photosensitized. Suggested light screens are: menthyl salicylate, 10 per cent, or cycloform, 10 per cent, in a zinc oxide ointment base.

The prevention of cutting-oil acne consists in shielding the machines so that splashes of oil do not strike the workers and in filtering the insoluble cutting oils after one hundred and fifty hours of use. Fuller's earth or activated carbon used in the filters will improve the odor and calcium oxide will lessen the acidity. Disinfectants should not be added to insoluble cutting oil, for they only increase the skin hazard.

Personal cleanliness and protective clothing, as outlined above, should be encouraged. In addition to these, impervious sleeves and aprons[10] should be provided.

Treatment

The treatment of the occupational acnes must be governed by the stage and extent of the lesions, but in general it consists of the expression of comedones, evacuation of abscesses and cysts, and the frequent use of skin cleansers.

X-ray should be used only in special cases and with great caution because the rationale of its use in the treatment of acne vulgaris does not hold for the occupational acnes.

The personal measures of prevention described above are also measures for treatment.

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Discussion

Dr. Louis Tulipan, *New York City*—The presentation by Dr. Schwartz and Dr. Peck on "Occupational Acne" was both enlightening and interesting. It was especially enlightening because of the histopathology presented by Dr. Peck.

Recently, because of the occurrence of a large number of acneform eruptions, I was asked to investigate a defense factory in which oil-containing chlorine was being used. Quite a variety of lesions had been produced.

Out of 144 such cases, some showed comedones only, others milia only; some had cysts as large as hazelnuts; one had a picture of acne congoblata; and many showed a combination of lesions like those found in the acne vulgaris of puberty. In many cases, in addition to the face, there was involvement of the chest, back, forearms, thighs, buttocks, and scrotum.

I agree with Dr. Schwartz that cases in which the lesions are limited to milia and cysts will not respond to x-ray therapy. However, when the eruption simulates an acne vulgaris of puberty, x-ray therapy is definitely indicated and must be employed to get any results.

I also agree that besides the advice on the use of x-ray, all other advice as to cleanliness, protective clothing, proper ventilation, etc., should be followed.

TRAINING PROGRAM FOR HOSPITAL ORDERLIES

New York's 100 voluntary nonprofit and municipal hospitals are faced with the most serious personnel situation in their history—a condition that can be remedied only by the immediate recruiting of 3,000 volunteer workers—according to Roy E. Larsen, president of the United Hospital Fund of New York.

Five New York hospitals are ready to inaugurate a training program similar to that being used at New York Hospital. The hospitals which have set up such a program and are waiting only for volunteers in order to get under way are St. Luke's, Mount Sinai, The Bronx, Lenox Hill, and Presbyterian.

Persons wishing to volunteer should call at the Fund's Hospital Volunteers Bureau, at 370 Lexington Avenue, between 11:00 A.M and 4:30 P.M. any day except Saturday and Sunday. The bureau is open until 7:30 P.M. Mondays and Thursdays.

Symposium on Carcinoma of the Colon and Rectum

THE EARLY DIAGNOSIS OF CARCINOMA OF THE COLON

BURRILL B. CROHN, M.D., New York City

TO THE gastroenterologist falls the greatest number of psychoneurotics as well as the greatest proportion of carcinoma cases. The abdomen is the "sounding board of the emotions" and surely seven out of every ten cases of abdominal complaints are neurotic in origin. But among the residual 30 per cent of cases carcinoma of the alimentary tract looms up as the greatest threat to precision of diagnosis. In frequency alone, cancer of the digestive tract constitutes the largest single category of malignant new growths (49.75 per cent).[1] With digestive tract carcinoma about evenly divided between stomach and colon, the large bowel represents approximately 15.5 per cent of all neoplasms of malignant nature which attack the human organism. Dilute these current and minimum new growths with a superabundance of psychoneurotics and their multiferous, vague, and misguiding symptomatology and one will readily sense the problem of discovering the early colonic new growths in the maze of misleading hypochondriac complaints.

Sex is no clue, for while carcinoma predominates somewhat in men, the incidence of carcinoma of the colon is about evenly divided between men and women. Nor is age a good guide, for while the majority of cases fall between the fifth and sixth decades, cases in young adults are not rare, being seen occasionally in the late teen ages as well as in the early twenties. This point requires considerable emphasis, for the differentiation of early carcinoma of the rectosigmoid, a disease of more advanced age, from ulcerative colitis, a disease significantly that of young adults, causes considerable confusion when cancer of the bowel occurs in a young adult.

Hereditary factors in cancer, or at least familial tendencies, are likely to be insufficiently stressed. Dr. Maude Slye has pointed out the necessity of recognizing familial trends in carcinoma, a new point which has too often been categorically denied by the past generation of geneticists. Some years ago I was asked to investigate the case of a young woman 32 years of age, who was suffering from diarrhea, a progressive anemia, and loss of weight. The referring physician warned of the fact that both the father and the mother of the girl had had carcinoma of the cecum. The first roentgenographic studies of the colon of the patient were negative. Having been warned again of the possible factor of heredity, I had the large bowel rayed once more. A suspicious defect of the cecum made exploratory laparotomy mandatory. A well-developed carcinoma of the cecum was resected at the operation. Obviously a young adult cannot inherit from parents a disease that develops late in their lives, but if a familial trend can be handed down to offspring, here is really an instance of inbreeding with disastrous transmissions.

Recently again a carcinoma of the rectosigmoid in a grandmother led to the investigation of persistent diarrhea in her grandchild. The grandchild, a young woman 28 years old, was discovered to be the bearer of a similar carcinoma of the rectosigmoid, identical in position and nature. Such a coincidence may best be explained on the basis of frequency of the malady alone, in young and in older adults, but the possibility of familial trends deserves attention.

In the etiology of carcinoma of the colon no single factor is more momentous than the existence of adenomatous polyps, single or multiple, or of well-developed generalized polyposis, particularly of the congenital type. According to Klemperer,[2] polyps in the colon are an extremely common occurrence, being found upon careful investigation to affect 21.5 per cent or more of so-called normal colons. Sooner or later in the life of the bearer, congenital polyposis of the colon undergoes malignant degeneration in practically 100 per cent of the cases. Such malignant metaplasia is not accidental, for carcinoma may be seen not in one area alone but in several. In one specimen there have been found three cancers. In another specimen in the Pathological Museum of the Mount Sinai Hospital, seven separate and individual areas of carcinomatous degeneration in advanced stages are clearly marked. What does happen almost universally in congenital multiple polyposis may and frequently does occur in single widely scattered polyps of the colon. Any polyp of the large bowel is susceptible to carcinomatous degeneration, particularly if it is situated at a point of greatest

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From the Medical Services of the Mount Sinai Hospital, New York City.

mechanical friction, such as the rectosigmoid angle or rectum. No such polyp may be considered incapable of creating serious results. Every polyp of the rectum or rectosigmoid angle should be fulgurated or snared, whether the biopsy be positive or negative, for every polyp is essentially suspicious and potentially capable of providing the basis for a carcinomatous neoplasm. A biopsy taken from a large polyp may at the first or even the second attempt be reported as benign in nature, yet this does not exclude a possible beginning malignant degeneration at some other aspect of the same polyp. This was noted in my experience with a young man, in whom, in spite of negative biopsies and because of persistent bleeding, a radical operation was considered advisable. The resected polypoid mass on careful histologic examination showed malignancy in only one area at the base. Fatal metastases occurred within a few months of the resection.

Carcinoma of the cecum is to be suspected in any case of advanced secondary anemia in which the cause of the anemia is not at once discoverable. The large lumen of the cecum with its distensible walls fails to give mechanical signs of obstruction until and unless the ileocecal valve becomes involved. A mass in the cecal region is often difficult to differentiate from a spastic or mobile cecum. Diarrhea may be transient and minimal and the mass difficult to palpate, but the advanced anemia, particularly when associated with persistent occult blood in the stools, is highly significant of a neoplasm of the alimentary tract. It has been aptly said that three stool examinations, all negative for occult blood, rule out a carcinoma of the digestive canal, a statement that is easily corroborated in clinical practice. When occult fecal blood is persistent and is associated with an advanced anemia, all likely foci are to be suspected and investigated. One such area for study is the posterior wall of the stomach, particularly in the fundic area. The other likely point of origin is the cecum. Careful palpation for a deep abdominal mass in the right lower quadrant, and exhaustive barium enema studies should discover a carcinoma of the cecum when it exists.

Carcinoma of the flexures, hepatic and splenic, are less common, particularly the splenic flexure. Because they give rise to mechanical blocks at natural areas of angulation in the gut, they usually evince their presence at a relatively early stage of their existence. Any complaint of abdominal cramps, accompanied by diarrhea, with relief of the pain by defecation is highly suggestive of an organic origin. Where the bowel habit, in an adult, changes gradually from one of constipation to one of diarrhea the suspicion of neoplasm is well-founded. Where diarrhea has existed for some time, for independent reasons, the clinician must have a sixth sense or a deep clinical hunch to suspect that some new organic influence has come into being as the source of an alarming basic change in the bowel function. An adult man who had had a gastroenterostomy many years ago had also been a sufferer from diffuse ulcerative colitis. Over a course of years he had had recurrences of diarrhea with a positive sigmoidoscopic picture of ulcerative colitis, but in recent years he had remained relatively well. A sudden and recent occurrence of diarrhea seemed attributable to either the gastroenterostomy or to a recurrence of the old colitis.

But there was something about the present diarrhea that differentiated it from previous attacks. Upper abdominal ulcer pain was absent, the sigmoidoscopy was negative, and yet abdominal cramps and diarrhea persisted, though without anemia and without loss of weight. A barium enema revealed a carcinoma of the hepatic flexure of the colon. Such a neoplasm may have been purely incidental or may well have resulted from the malignant degeneration of a polyp residual from a long-healed colitis. Ulcerative colitis can be and is often cured, at least for long periods of years, if "cured" is the word to describe such an intransitory phase of potentially latent disease. In healing, such instances of colitis frequently throw up inflammatory polyps, which polyps, like all other intestinal polyps, are capable of malignant degeneration. Carcinomatous degeneration as a sequel to healed colitis usually occurs in the rectum or at the rectosigmoid segment of the bowel because that is the area of the greatest concentration of the inflammatory disease, the area of maximum scarring, and the locus of most frequent stricturing of the wall of the bowel. But there is nothing to gainsay the probability that in this man the healed colitis left polypoid changes in the transverse colon and hepatic flexure and that one such polyp had undergone malignant degeneration.

Carcinoma of the descending colon is relatively rare in comparison with the areas of the large bowel and may be symptomatically silent and difficult to detect. Until obstruction of the bowel lumen becomes obvious, with its severe abdominal cramps, constipation, and mass formation, all of which are late eventualities, the presence of the new growth may easily be overlooked, and the cause of the progressive anemia and loss of strength may well be hidden from discovery.

A man 72 years old complains of shortness of breath on exertion. He has absolutely no other symptoms—he has lost no weight, he denies having diarrhea, he has had no presenting ab-

dominal signs. He has had no evidence of thoracic pain relatable to coronary lesion, but he evinces an obvious pallor. His hemoglobin reads 48 per cent; on routine abdominal examination a large mass the size of fetal head is easily palpable in the course of the descending colon. On radiography, a corresponding defect having all the circular markings and mucosal distortion of pattern of a carcinoma of the bowel corresponds anatomically with the mass felt in the descending colon.

Here is a most lamentable incident, one which breeds discouragement over the possibilities of early diagnosis of neoplasm if the subjective symptoms of the patient are to give the first and early alarm with which to draw the attention of the practitioner to the abdomen and to the bowel habitus. For here there were no presenting symptoms—no diarrhea, no pain, no blood in the stool, no loss of appetite—but only anemia and effort-syndrome, or distress, on exertion; yet the mass palpable was the size of a large grapefruit. Only careful abdominal palpation, or routine roentgenography, or a keen clinical sense which might spot the anemia would discover at an early period the silent and symptomless growth of a bowel cancer. All carcinomas of the bowel, in their early stages of growth are undoubtedly symptomless, particularly the large adenocarcinomas with proliferation into the bowel lumen and without circular extension that will cause obstruction. When the intestinal lumen is sufficiently encroached upon, or when necrosis and ulceration advances to the stage of creating diarrhea, anemia, and toxic weight loss, the clinical symptoms are recognizable. By that time a sizable mass has already formed, and metastases may well be present.

Most mistakes in medical practice occur not from ignorance but from carelessness and from insufficient examination. If routine abdominal palpature were well taught and were routinely employed, many early carcinomas of the silent areas of the bowel would be discernible at a relatively early period.

The Rectosigmoid and Rectum

Here we are dealing with no silent area but on the contrary with one which speaks early and frequently and volubly, requiring only an alert physician to recognize and to interpret the presenting symptoms and to apply scientifically and correctly his diagnostic armamentarium. For blood, pus, and pain mark, like blood, sweat, and tears, the travail of a rectosigmoid neoplasm. If only the case were not dismissed haphazardly as "hemorrhoids" or as "colitis," if only the examining finger and the sigmoidoscope and the barium enema were early utilized, if only the common scientific means at the disposal of every practitioner in our scientifically advanced and well-equipped States were utilized for the elucidation of every case of diarrhea, the early diagnosis of carcinoma of the rectum and of the rectosigmoid should be relatively simple and enormously rewarding.

Having taken the stand that mistakes in medical practice are chargeable to carelessness and to insufficient examination, let us analyze the situation in regard to the early diagnosis of rectal and rectosigmoid carcinoma in an effort to elucidate the difficulties and to overcome often inexcusable delays.

It has been said by Rankin[1] that two-thirds of the neoplasms of the colon are within reach of the examining finger per rectum. The first general mistake is one of omission—the rectal examination is only too often *not* performed. The amount of information to be gained by a careful digital examination of the rectum is incalculable, both in inflammatory and in neoplastic diseases. Why the practitioner should regard rectal palpation as purely the preserve of the specialist or the consultant is beyond reason, for the technic is elementary and the knowledge gained is most valuable. The most satisfactory technic requires the patient to be in the dorsal or Sims' position, preferably on a high examining table, buttocks extending over its proximal edge, knees drawn up high. Without glove or finger cot and with the naked finger well-lubricated, a mine of information is within reach. Add bimanual pressure by employing the free hand to press down firmly on the lower abdominal and pelvic content, pushing them deeply into the pelvis and within range of the exploring finger high in the rectum and almost any mass in the rectum or the rectosigmoid can be palpated. This statement is in fact no exaggeration; it has been aptly said that any neoplastic mass that can be seen with a sigmoidoscope can be felt with the examining finger per rectum. The statement is so accurate that a rule could well be made of it, for the rare and occasional exception only proves the utility of the rule.

The use of the naked finger may evoke an arched eyebrow or the smile of disdain from "men in white." Thirty years of rectal palpation without rubber protection and without, personally, so much as single paronychia or a resultant skin infection have convinced me of the superiority of the method, and of its technical safety.

The second cause for frequent mistakes is neglecting to use the sigmoidoscope. True, to introduce a sigmoidoscope or a proctoscope requires some skill, and to interpret the results requires still more skill and experience. But the instrument is relatively inexpensive, and its use is comparatively free of danger. With patience and

mechanical friction, such as the rectosigmoid angle or rectum. No such polyp may be considered incapable of creating serious results. Every polyp of the rectum or rectosigmoid angle should be fulgurated or snared, whether the biopsy be positive or negative, for every polyp is essentially suspicious and potentially capable of providing the basis for a carcinomatous neoplasm. A biopsy taken from a large polyp may at the first or even the second attempt be reported as benign in nature, yet this does not exclude a possible beginning malignant degeneration at some other aspect of the same polyp. This was noted in my experience with a young man, in whom, in spite of negative biopsies and because of persistent bleeding, a radical operation was considered advisable. The resected polypoid mass on careful histologic examination showed malignancy in only one area at the base. Fatal metastases occurred within a few months of the resection.

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Discussion

Dr. R. J. McMahon, *Johnson City, New York*:—Dr. Crohn has just presented a concise and practical talk on the early diagnosis of carcinoma of the colon. There is little new that I can add, but several of the points that he has made are so important that I think re-emphasis is justified.

The most important point for all of us is never to forget the possibility of carcinoma in any patient at any age with symptoms relative to the gastrointestinal tract.

Why are surgeons forced to operate on the vast majority of carcinomas of the colon after they have been in existence for more than a year? Sometimes, it is due to the negligence of the patient, but more often it is directly traceable, as Dr. Crohn pointed out, to the carelessness, the armchair diagnosis, of a physician or several physicians who did not take the trouble to palpate the abdomen carefully or to make a rectal examination. Eighty per cent of these cases could be diagnosed early by any careful, conscientious physician, and our surgical cures could then be raised from 40 per cent to 70 or 80 per cent.

Then there is the question of family history. When carcinoma exists in the family history of the patient, we must be doubly alert.

Too often physicians are prone to send their patients for an x-ray to rule out carcinoma. Dr. Crohn has pointed out that about two-thirds of all carcinomas of the colon can either be felt by the examining finger or seen by the sigmoidscope, and in that area they are the most difficult ones for the x-ray man to demonstrate. If there is one thing that we can learn here today, it is for all of us to think less of rushing our patient off for an expensive x-ray study before we have taken the trouble to take a careful history and to do a thorough examination, such as all physicians are capable of doing. Then, and then only, are we justified in having an x-ray examination made.

I was glad to hear Dr. Crohn emphasize the danger of accepting too readily the findings of diverticula of the colon as an adequate explanation of rectal bleeding. In fact, it seems to be the exception, rather than the rule, for gross bleeding to come from diverticula.

Everyone has been taught the importance of chronic irritation as a precipitating cause of carcinoma, but sometimes we forget the importance of polyps of the rectum and rectosigmoid. Because they appear benign and probably are benign when they are first noted, we must impress our patients with the danger of malignant degeneration and insist upon their removal.

Carcinoma of the cecum is important because it is fairly late in metastasizing and frequently is unsuspected because of the lack of bowel symptoms. However, every case of severe anemia that cannot be explained should be suspected to be due to carcinoma of the cecum until proved not to be. One simple but very important test that anyone can do is testing for occult blood in the stool after the patient has been on a meat-free diet for three days.

I have been delighted with Dr. Crohn's paper because it has been so practical and so full of common sense. If each of us will put into practice the points that he brought out in his talk, I am sure that many more cases of early carcinoma of the colon will be brought to the attention of the surgeons and many more patients will be cured.

DIAGNOSTIC AND THERAPEUTIC VALUE OF X-RAY IN CARCINOMA OF THE COLON

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WE SHALL divide the radiologic aspect of carcinoma of the colon into two parts: (1) the diagnostic studies and (2) the methods and value of therapy. We choose to discuss them in this order for two reasons, the first being that diagnosis must logically come first, and, second, from a radiologic point of view the diagnosis of colon malignancies is more satisfactory than the treatment.

As an introduction to diagnosis we shall first consider the methods at our disposal by listing them and then discussing briefly the indications and value of each.

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1. Flat film of abdomen.
2. Contrast methods.
   (*a*) Oral barium.
   (*b*) Contrast by rectum.
      (1) Single contrast.
      (2) Double contrast.

An abdominal flat film serves as a preliminary procedure to guide us in future steps of more accurate diagnostic value. We feel that this film should always be made before any contrast methods are employed. Undoubtedly in most cases the results of this portion of the examination will be negative, but occasionally we gain information which is of great value. We may obtain a rough estimate as to the site and degree of ob-

expertness all rectal and practically all rectosigmoid neoplasms will be seen and, what is still more valuable, will allow for biopsy and thereby for histologic confirmation. The appearance of the ulcerating, everted edge of the mass through the open end of the sigmoidoscope, the crunching feel of the biting forceps, and the ease with which it penetrates a tumor mass in contrast with the tough resistance of normal mucous membrane together with the almost 100 per cent verification, thereby, of the tentative diagnosis, place the sigmoidoscope far in the foreground as the most satisfactory and exact instrument for diagnosis.

The third error which may arise in the early diagnosis of rectosigmoid, and particularly rectal carcinoma, is the exaggerated, blind confidence in the reading of roentgenograms. Any practitioner who in place of using his palpatory finger relies on a barium enema for early diagnosis of rectal cancer is headed for many shocks. True, in high rectosigmoid carcinoma the x-ray examination is eminently satisfactory and discovers a defect in one or more films. But in many patients the very redundancy and reduplication of the pelvic or sigmoid colon may defeat the fluoroscopy and may confuse the clarity of the films. Unless films are taken in extreme lateral positions, the neoplasm, overlaid by coils of bowel in straight anteroposterior shots, may be completely missed or caught only in the lateral films or in the film after evacuation.

Important as these three methods of diagnosis are for early discovery of low colonic neoplasms, they still require the clinical experience, the skill, and the personal equation properly to evaluate and to piece together the results of the findings.

There are certain difficulties in the pelvis which deserve mention. A large pelvic mass palpable bimanually may be a fibroid uterus with posteriorly placed myomatous masses or may be a carcinoma of the pelvic colon or may be both. The differentiation here may be most difficult. The persistence of rectal bleeding or the first notice of bloody diarrhea after a hysterectomy may, while the patient is still recovering from the operation, call attention for the first time to the fact that the high rectal carcinoma has been the actual cause of the symptoms.

A metastatic "Blumer's shelf" may often feel, per rectum, like a growing carcinoma just around the bend of the rectosigmoid. The extrarectal feel of the mass and the inability of the sigmoidoscope to locate an intraluminal ulcerating growth will declare the neoplasm as metastatic in origin and divert the search to other and higher primary sources of carcinoma in the alimentary tract.

The obvious demonstration of diverticulosis in the sigmoid is a very satisfactory diagnosis in most instances, but it should not necessarily lull the suspicion of neoplasm. In clinical practice, sigmoid diverticula rarely cause gross rectal hemorrhage. Logan, Bargen, and Buie[3] have warned of the unsatisfactory status of gross bleeding in the diagnosis of diverticulitis. Gross hemorrhage from the bowel in an evident case of diverticulitis calls for very careful and exact studies in order to exclude all other causes for the hemorrhage. Neoplasm of the sigmoid often coexists with diverticula of the bowel as an independent process. The carcinoma is not a malignant degeneration of the diverticulum but arises *de novo* for its own essential reasons. The differentiation of a tender mass in the sigmoid, in the presence of diverticulitis is often a most difficult affair and one which may defy even the most experienced clinician. Nor is the interpretation of the x-ray films likely to be too helpful, for the defect and the mass in both conditions may be almost identical. If bloody diarrhea is present, it should be the deciding clinical manifestation which calls for a mandatory laparotomy.

Of all the suspicious signs of rectal neoplasm, none is so constant as diarrhea and the passage of bright red blood per rectum. So often innocent hemorrhoids are surgically suspected or removed and the carcinoma left behind. Every case of rectal bleeding, particularly with diarrhea, should be sigmoidoscoped and radiographed before the case is closed as one of hemorrhoids.

Not only carcinoma but also ulcerative colitis frequently manifests itself as rectal hemorrhage long before the diarrhea announces itself and long before the other signs of abdominal pain, fever, loss of weight, or anemia are established. In ulcerative colitis, the rectal bleeding may even precede the characteristic mucosal changes, but in carcinoma the tumor is already present and can be discovered by proper means.

Unfortunately, the diagnosis of "nervous colitis" is all too fashionable as an explanation for diarrhea in a neurotic patient. The decision to blame the diarrhea in the psychoneurotic patient upon "irritable bowel" or upon "mucous colitis" or upon intestinal allergy, robs one frequently of the duty and the satisfaction of making an early diagnosis of rectal carcinoma in the yet operable stages. Again the examining finger, the sigmoidoscope, and the barium enema tell the story. All that is required is the carefulness of thinking, the awareness of the possibility of neoplasm, the proper technic and training to carry out the necessary diagnostic procedures, to correct mistakes and to avoid that self-recriminatory feeling of dismay when someone else exposes our errors of omission.

the bowel surrounding the base is not invaded. The last point is the most important. If we can definitely show invasion of the surrounding wall, we have positive evidence of a malignant lesion. On the other hand, if the wall is not invaded, we cannot presume that the lesion is definitely benign. Another disconcerting factor is that benign lesions tend to undergo malignant changes. For a radiologist to attempt to differentiate metaplastic changes in the interior of a tumor from its roentgenographic appearance would be bold indeed. However, for the most part, when polypoid carcinomata are seen by the radiologist their extent and their invasive characteristics make the diagnosis quite obvious. Multiplicity of polypoid lesions substantiates a diagnosis of benignancy. Again, the possibility of malignant changes in one or more of these benign polyps must be carefully considered.

Granulomatous lesions, particularly hyperplastic tuberculosis, may be confused with polypoid new growths. There may be considerable invasion of the lumen with this type of pathology. With tuberculosis there is almost always involvement to some extent of the cecum and the terminal ileum. The caliber of the lumen is not definitely fixed. Hyperactivity of the bowel is probably the most notable characteristic. The cecum tends to empty itself almost completely as soon as pressure of the enema is released or in some cases against the pressure of the enema. The area of involvement is usually very tender. The diagnosis usually rests on a chest roentgenogram, for most cases of tuberculosis of the colon are associated with active pulmonary pathology.

Carcinomata which infiltrate the wall and annular lesions present another problem. In these the differential diagnosis becomes more involved and difficult. The first necessity is, of course, visualization of the lesion itself. This statement may seem superfluous. However, it is not uncommon in annular lesions to meet with complete obstruction when contrast medium is injected by rectum even though the obstruction is incomplete to normal flow of bowel contents. This occurs because the lesion assumes a valve action to retrograde flow.

With manipulation and rotation of the patient, however, a high percentage of lesions can be demonstrated.

Let us now list the diagnostic features of malignant annular lesions:

1. They are short lesions—usually not over $1^1/_2$ inches in length.
2. Wall of lesion is rigid and nondistensible.
3. There is loss of normal mucosa.
4. They are usually nontender.
5. Tendency toward spasm in areas of bowel adjacent to the lesion is minimal.

Now we can consider the more common lesions which may be confusing and attempt to point out differential features. Probably the most common obstructing lesion encountered in the colon is diverticulitis. The differential diagnosis of this lesion is not difficult. The following points serve to differentiate it:

1. Usually we can demonstrate concurrent diverticula.
2. The lesion is tender to palpation.
3. There is marked surrounding spasm.
4. The lesions are of greater length.
5. Distensibility of the lumen can be demonstrated.

It must be remembered that carcinoma can also occur in the presence of diverticula.

Localized segmental colitis may occasionally be confusing. This lesion is, however, tender, active, and distensible, and furthermore, there is a tendency toward multiple areas of involvement.

One of the most disturbing lesions to differentiate is an inflammatory process which has perforated with production of a pericolitis with fibrosis and fixation. These lesions are usually of considerable extent, they are tender, and the adjacent bowel is hyperactive. However they resemble carcinomata in their nondistensibility and fixed deformity. Also these lesions may show a marked degree of mucosal destruction. Another disturbing feature is the possibility of a carcinoma perforating with production of a pericolic inflammatory mass. In such cases an absolute diagnosis is sometimes impossible.

A stricture of the rectum and lower sigmoid from lymphogranuloma inguinale is usually easily recognized by the extent of the lesion, its position, and its regular outline.

Occasionally an adhesion band across the lumen of the colon may produce some degree of obstruction and a constant defect. Such a lesion is extremely short, and normal mucosa passes over the surface of the defect. The interpretation is in most instances not difficult.

Summary

To summarize the important features of roentgen diagnosis of carcinoma of the colon, we should list the following points:

1. Preliminary flat films.
2. Proper preparation of the patient for contrast studies.
3. Careful fluoroscopic observation of colon filling plus detail films of suspicious areas

struction if such is present. Also, we may demonstrate calcifications, stones, or masses, the knowledge of which is extremely helpful in differential diagnosis. Occasionally free air may be demonstrated in the peritoneal cavity from a perforated colon lesion. The presence of such a perforation is, of course, a definite contraindication to any studies of the bowel by contrast methods. This does not necessarily mean that in all cases in which we examine the colon, films are made in projections to demonstrate free air. However, if the clinical data even suggests this possibility, such films should certainly be made.

Of course the accurate roentgen diagnosis of colon pathology can only be made by contrast methods. Such a study must be carried out with a most careful and exact technic. The responsibility for the examination must be in the hands of an individual with adequate training and experience.

If we are to attempt an accurate study of the colon, the first requisite is proper preparation of the patient. As with any other contrast study, we are dealing with shadows of varying density which conform to the lining of the lumen of the cavity that is being studied. If contents remain in the bowel at the time of examination, these shadows can be very disconcerting and can detract markedly from the accuracy of the examination. Proper preparation requires an oral laxative, plus enemas to clean the lower bowel. Saline cathartics necessarily defeat our purpose, for they act by increasing fluid bulk while our ultimate aim is toward having the bowel completely empty. A cathartic which acts by its irritant effect is the most satisfactory. We find that castor oil given during the afternoon before the examination, followed by a plain water enema early in the morning, gives the best results. The castor oil does tend to increase spasm in the colon, but we feel that this is beneficial rather than detrimental because the mucosal markings are more readily discernible in a bowel which is spastic, while they disappear almost completely in the atonic bowel.

We shall speak only briefly of the use of oral barium in demonstration of colon malignancies. By such a method we introduce the complication which we attempt to eliminate in preparing the patient. That is, we necessarily mix the barium with the colon contents. Furthermore, after oral barium, we must depend entirely on the intestinal movements for transportation and distribution of the opaque material. This limits its value markedly. With partially obstructing lesions in the left half of the colon where contents become solid, occasionally hardened barium will produce an increase in the amount of obstruction which was already present. Certainly in colon malignancies the use of oral barium is of doubtful value, particularly when compared with barium per rectum.

The barium enema is an extremely accurate and valuable diagnostic procedure. Careful fluoroscopic studies during filling combined with detail films of lesions is the proper method of study. The patient can be positioned under fluoroscopic guidance and "spot" films can be taken as desired. With a little practice, shifting of the patient and palpation of the abdomen during fluoroscopy allows accurate visualization of the entire colon. After evacuation, re-examination will in some instances allow a better study of the mucosa. Air may be used as a double contrast medium after evacuation, and occasionally polypoid growths, which otherwise cannot be visualized, can be demonstrated on films by this method.

However, it has always been our experience that if careful fluoroscopic studies are made with single contrast, these lesions will be seen. Double contrast in such cases offers only a method of making a record on film of the lesion. Of course, it must be admitted that such a record is in many instances of distinct advantage.

Now let us consider the diagnosis of carcinoma of the colon by roentgen methods. We do not feel that we are justified in attempting to classify a tumor as to type by its roentgen appearance. If the diagnosis of new growth can be made accurately, we feel that our work has been well done. We are willing to leave the classification of the tumor in the hands of the pathologist.

From a roentgenologic point of view, new growths of the colon may be classified into two main groups. The first are those which mainly invade the lumen and may be polypoid or sessile in type. The second are those which invade the wall and tend to encircle it, producing the annular lesions. The normal colonic mucosa may be more or less destroyed in either instance and areas of ulceration may occur in either case. Of course, the first step in diagnosis is the recognition of the borderlines of normality and of variations from this normal. Once we have determined that a pathologic state exists, we can concentrate on an accurate diagnosis.

The recognition of a polypoid filling defect in the lumen is not difficult. The defect appears as an encroachment on the barium column, corresponding in size, shape, and position to the neoplasm. In these lesions the malignancy or benignancy of the growth may in some instances be more of a problem. Benign lesions tend to be more even in contour, the mucosa over the surface is less apt to be destroyed, and the wall of

external and rectal examination. Proctoscopic examination was unsatisfactory because of the patient's exquisite tenderness and the inability to prepare the patient properly before examination.

Examination of the colon with barium enema revealed a perirectal abscess with obstruction of the rectum owing to pressure of the abscess and to spasm. Chest films revealed bilateral apical pulmonary tuberculosis and collapse of the lingula of the left upper lobe.

The patient was discharged to a sanatorium eight days after admission, with a diagnosis of pulmonary tuberculosis with perirectal tuberculous abscess. He died about one month later and autopsy corroborated the clinical findings of pulmonary tuberculosis and tuberculous perirectal abscess, but an anaplastic carcinoma of the prostate was found with metastases to the lungs, liver, and kidneys.

This case is presented because it is a less common method by which tuberculosis can obstruct the colon and be confused with a carcinoma.

I believe that irradiation treatment of carcinoma of the colon has been very completely covered inasmuch as x-ray is usually the second choice except in those instances as outlined by Drs. Culver and Koenig.

But I should like to stress here the value of biopsy in obviously malignant tumors of the colon, for we occasionally discover a lymphoblastoma which is primary in the colon and, of course, will respond to x-irradiation even after it is definitely inoperable. Realizing how radioresistant carcinoma of the colon usually is, we are apt to give up completely when we find an inoperable lesion which is clinically carcinoma. We should remember that we have not made a diagnosis until we have the pathologist's report.

CARCINOMA OF THE LARGE BOWEL

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IN DISCUSSING cancer of the large bowel, I wish to present the subject under four different headings: (1) diagnosis and treatment of cancer of the large bowel; (2) review of cases of ten years' duration; (3) importance of high operability in cancer of the large bowel; and (4) presentation of two unusual cases.

Carcinoma of the large bowel carries an almost prohibitive mortality in the hands of the general surgeon. Even the specialists in large clinics and hospitals, who are interested in colon surgery, report a high mortality. Fortunately, recent statistics show a decreasing mortality with an increasing operability. A comparatively low operability is due mainly to delay in making a diagnosis.

Diagnosis

Any patient above 40, man or woman, who complains of "cramps" extending over a period of weeks or months should be suspected of having a lesion in the large bowel.

Any alteration in bowel function—such as constipation, diarrhea, alternating constipation and diarrhea, blood in stools, or change in the caliber of stools—should lead one to suspect a carcinoma of the large intestine. However, if one waits for massive hemorrhage, anemia, marked loss in weight, palpable mass, and complete bowel obstruction, the lesion is usually inoperable.

Every patient should have a complete rectal and sigmoidoscopic examination in any questionable case. X-rays should be taken, and, if negative, should be repeated at the end of a month if the history is suggestive. In fact, repeated x-rays by different roentgenologists may clear up an obscure case.

Since carcinoma of the rectum comprises more than 50 per cent of malignancy of the large bowel, digital examination will account for approximately that number. An additional 25 per cent may be diagnosed by means of sigmoidoscopy and the remainder by barium enema.

Treatment

I shall not go into detail concerning any particular type of technic but will give deductions from my experiences with some of the various methods.

There are various methods of dealing with carcinoma of colon and rectum. One of the most satisfactory methods is the Mikulicz technic, as advocated by the Lahey Clinic.

The open, direct anastomosis of C. W. Mayo,[1] the aseptic anastomosis of Stone,[2] the end-to-end anastomosis of Babcock, the Rankin technic, and the Wangensteen technic, are some of the other methods.

I am sure that each and every one of the various specialists can use his own method very satisfactorily to himself, but how about the general surgeon who averages less than a case per month? It is obvious that a specialist who is doing considerable colon surgery will use various methods in selected cases, but I believe the occasional sur-

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offers a very satisfactory method of diagnosing colon malignancies.
4. Actual visualization of the lesion is necessary for diagnosis.
5. The malignancy or benignancy of polypoid growths cannot always be determined.
6. Various inflammatory lesions present the most difficult differential problems.

Of course a careful correlation of all data—clinical, laboratory, and roentgenologic—is the ultimate ideal toward which we strive in arriving at the final answer.

We shall spend only a limited time on the discussion of radiation therapy of colon malignancies because we do not feel that irradiation is the treatment of choice in this disease. Only in selected cases is irradiation a rational choice. In the first place these lesions are notably radioresistant. Second, surgical removal in the absence of metastases offers a method of absolute cure. These two reasons are sufficient to discourage us in the use of irradiation in uncomplicated cases.

Occasions sometime arise when we are justified in irradiating tumors of the large bowel. A carcinoma which is extensive and fixed may lead one to suspect that it is inoperable. Regression of such a tumor under roentgen therapy may render it more readily operable. In such a case irradiation should be intensive and should be given in a short time interval so that maximum regression occurs. Time for tissue reaction to disappear may be allowed before surgery is attempted. Such a procedure may also be of value in reducing concurrent inflammation.

In some cases of carcinoma of the colon, it may be noted at surgery that lymphatic extension is marked, and the surgeon, after the removal of the tumor, will not be certain that all involved lymphatic structures have been removed. Systematic postoperative irradiation of such cases, given in much the same way as the treatment of postoperative breast cases, seems justified. The reasoning is as sound as that in carcinomata of the breast.

Occasionally at surgery it is found that the primary lesion itself cannot be removed and a palliative surgical procedure for obstruction is carried out—either a colostomy or a short-circuit of the area of involvement. Postoperative therapy to the lesion itself may bring about a considerable degree of regression and the life expectancy of the individual may be notably increased.

Carcinoma of the rectum is the most accessible of colon malignancies to roentgen therapy, and some cases of inoperable lesions in this location may show an extremely favorable response. However, local tissue reactions are apt to be severe and disabling to the patient, necessarily limiting the amount of irradiation that we can employ. Therapy is more easily carried out if a colostomy is performed prior to the administration of such therapy.

At the present time we can only say that irradiation therapy of colon malignancies leaves much to be desired, and, except in instances similar to those we have mentioned previously, we hesitate to use irradiation, strongly advising surgical intervention instead.

Discussion

Dr. K. L. Mitton, *Schenectady*—I want to congratulate Drs. Koenig and Culver on their excellent presentation of the use of x-ray in carcinoma of the colon.

To stress the importance of carcinoma of the colon I should like to quote a couple of sentences from Drs. Harms, Plaut, and Oughterson's paper on "Delay in Treatment of Cancer."

"Delay on the part of the physician was found chiefly in cancer of the internal organs. The major part of the delay was due to the failure to request x-ray or endoscopic examination." Drs. Culver and Koenig have presented a very practical outline of the use of x-ray in carcinoma of the colon so that there is little of additional value to say. However, I should like to say that I agree, wholeheartedly, with Dr. Koenig's and Dr. Culver's methods of examination, and although their inclusion of a plain film of the abdomen in the examination of the colon is not universally used, no examination of any part can be said to be definitely complete if a film revealing the natural state of the part is not made before the introduction of a contrast material.

It so happens that it is seldom necessary to make a special radiograph of the abdomen without contrast media because when intra-abdominal pathology is suspected, the patient is routinely examined by barium enema and barium meal. A Graham test is done so that during the procedure every part of the intestinal tract is at some time free of contrast material. We must, however, remember that barium in the colon can obscure intra-abdominal calcification or other pathology which might otherwise lead to a diagnosis.

Since the more common lesions encountered in differential diagnosis of carcinoma of the colon have been reviewed, I shall present a case history to illustrate what might be found.

A 58-year-old white man was referred to x-ray for investigation of a partial obstruction of the lower large bowel. His chief complaints were diarrhea of one month's duration, weight loss, and productive cough during the last three months. At the time of admission the patient's abdomen was distended, and he passed only small amounts of liquid stool.

Physical examination revealed a very poorly nourished, pale man who appeared chronically ill as well as in acute distress. Multiple rales were heard over both sides of the chest posteriorly. The abdomen was distended and diffusely tender and a perianal, soft, tender mass was noted both on

TABLE.—High Operability Versus High Mortality—Which Is More Important?

Doctor A reports 150 cases		Doctor B reports 150 cases	
Operable	*Nonoperable*	*Operable*	*Nonoperable*
50 Mortality 10% (5 cases) 45 patients alive at end of year	100 (all dead within year)	100 Mortality 20% (20 cases) 80 patients alive at end of year	50 (all dead within year)

Review of Ten Years of Colon and Rectal Surgery

If the average general surgeon has developed a surgical ego, it will very quickly evaporate after a critical review of his surgery of the colon and rectum.

In reviewing my cases for ten years, March, 1933, to March, 1943, I found that I had 58 cases of carcinoma of the colon and rectum. Twenty-eight cases were operable; 30 were inoperable. There were a mortality of 25 per cent and an operability of 48 per cent. Twelve of the 28 patients in this ten-year series are still alive.

Of the 30 inoperable cases, there were 5 cases that might have been resected. The patients had metastasis to the liver, but the lesions were small and were located in the descending, or sigmoid, regions. Those cases were done in the first five years, before most colon surgeons had decided to resect the lesion, even though the liver has some metastases. Also, 6 cases had lesions that involved the uterus and small intestines, with no metastasis to the liver. These cases might be considered operable at the present time.

Eighty-five per cent had symptoms of change in bowel habit many months before operation.

The most common symptoms were cramps and increasing constipation. Of these cases 55 per cent had tarry or bloody stools for months, 38 per cent had loss of weight, and 22 per cent had anemia. The average age was 59 years, the oldest being 77, the youngest, 31. Sixty per cent were men; 40 per cent were women. The duration of symptoms ranged from two days to two years.

Of the inoperable cases, 40 per cent of the lesions were in the splenic flexure or descending colon. Of this group, 25 per cent had had an abdominal operation twelve months before the exploratory operation. The lesions were not found in the previous operation.

In cancer of the rectum, 20 per cent had had some rectal operation previous to an exploratory operation.

Three cases of carcinoma of the rectosigmoid juncture, with involvement of the adjacent structure, had no metastasis to the liver. These cases might well have been resected, if a 2-stage operation had been performed. Recently, we have had 2 such cases, with extensive carcinoma and inflammatory involvement. These cases subsided enough after four weeks to permit complete removal with a two-stage operation.

In other words, the more cases one sees, the bolder one becomes, even though the mortality may increase.

Why Is There a Low Operability and a High Mortality in Cases of Carcinoma of the Large Bowel?

Perhaps the low operability is chiefly due to the doctor who first sees the case. The public and the general practitioner have become fairly keen regarding the early diagnosis of acute appendicitis, but so far the average doctor has not become "colon conscious," if one may use such a term.

A few cases have no symptoms that would lead one to suspect carcinoma of the colon until the case is inoperable. On the other hand, however, many patients are consulting their doctors daily, telling them a fairly typical history of mild intestinal obstruction, such as "cramps" or bloody stools, but the doctor gives them a cathartic and sends them on their way. What is the further history of the case? The patient goes from doctor to doctor until some one of them is willing to soil his finger to do a rectal examination or perhaps to send the patient to an x-ray specialist for a complete roentgenologic examination. Occasionally the doctor may do a sigmoidoscopic examination.

This indifference is not only true of the general practitioner, but of the busy surgeon as well. *Just how can this situation be corrected?*

In the first place, the average doctor does not take enough time to obtain a complete history. He might better spend more time on the history and then do a rectal examination and postpone the abdominal palpation. Examination of the abdomen by palpation, except in acute cases, is often of little help to the patient or to the doctor.

Another reason for low operability is the fact that many men are doing surgery who have never done a resection of the colon or rectum. Consequently, they are content with giving the patient a permanent colostomy and trusting to radiation for a cure.

Furthermore, many abdomens are opened through a small incision which makes it impossible to do a complete exploratory operation, especially for lesions involving the splenic flexure.

Another reason that cases become inoperable is the fact that the x-ray examination may be negative and the case is dismissed with medication. If such a case has a good history of a possible obstruction or bleeding lesion, the whole ex-

geon will get into trouble unless he perfects himself in one good, safe technic.

It would seem to me that the two-stage Mikulicz technic as advocated by the Lahey Clinic is perhaps the safest and sanest for the average surgeon.

There are several points in the technic which should be mastered before it can be adopted as the safest method. This technic is applicable for any lesion from the cecum to the sigmoid. Low-lying lesions, bordering on the rectum should, I feel, be treated by a Miles operation, or a two-stage operation, as advanced by Dr. Lahey.[3]

Rankin says: "Probably the greatest simple technical factor in advancing colonic surgery was the discovery of the principle of exteriorization."[4]

According to Jones,[5] the mortality for Mikulicz procedure is low, and the morbidity is minimal. Furthermore, when the involved colon is mobile enough, the operation for the cure of cancer is as adequate as a resection with anastomosis.

One of the main objections to the Mikulicz procedure is that a prolonged hospitalization is necessary, but Jones has shown that this is not the case. However, in my few cases, the stay in the hospital has been more prolonged than in those that Jones reports.

Jones, however, prefers a one-stage ileocolotomy for lesions distal to the hepatic flexure.

If one encounters an acute obstruction with a carcinoma of the large intestine, he should do a preliminary cecostomy, according to the method of Cattell,[6] and two or three weeks later remove the lesion when most of the inflammatory area around the carcinoma has subsided. In this connection, it is not uncommon to find patients who complain of pain in the right side because of distension of the cecum, secondary to a carcinoma of the colon. This is occasionally mistaken for acute appendicitis.

Peritonitis is still the most frequent cause of death following a one-stage resection with primary anastomosis. It occurs infrequently after the exteriorization operation, and then it is usually secondary to complications, such as a perforation of the growth or a severe wound infection.

Anesthesia

In most cases, spinal anesthesia seems to be the most satisfactory because of complete muscle relaxation, which permits easy exposure of the operative site and makes the surgical handling of the small intestines unnecessary. Spinal anesthesia also allows easy wound closure.

Usually, we use pontocaine glucose solution, but neocaine, or any other spinal technic is satisfactory.

However, in very ill patients with a distended colon, I think that local infiltration of the abdominal wall with novocain 1 per cent, with a minimum of handling of the intestines, is desirable. Usually, a cecostomy can be done fairly satisfactorily with local anesthesia in such poor-risk cases.

I believe that a general anesthetic is definitely contraindicated if there has been projectile vomiting, as one occasionally encounters.

Preoperative Care

Preoperative treatment is very important in cases of carcinoma of the colon. Patients are given large doses of magnesium sulfate or castor oil on admission, and the colon is irrigated twice daily with saline. The blood chemistry and blood count are determined, a blood transfusion of 500 cc. is given if it is needed, and intravenous saline with glucose, 5 per cent, 1,500 cc. daily, is administered.

The Miller-Abbott tube is perhaps the greatest help in the care of large-intestine obstruction when one has a patent ileocecal valve. It causes a decompression of the small intestines and relieves some of the distension of the large bowel It also eliminates the necessity of an enterostomy in case of peritonitis. As Mayo has shown, the enterostomy increases, rather than lowers, the mortality. We leave the Miller-Abbott tube in for several days after operation, since it causes the patient no particular discomfort.

Postoperative Care

Postoperative care is also very essential. The postoperative care consists of studying the blood chemistry and giving 2,000 cc. to 2,500 cc. of saline with 5 per cent glucose daily for several days. Postoperative shock is eliminated by the administration of blood plasma during operation.

Sulfa Drugs

If there is any question of contamination during an operation, we sprinkle sulfanilamide, 15 Gm., in the abdomen, for the average-size patient. Beginning eight hours after operation, 2½ Gm. in 100 cc. of distilled water are given intravenously three times a day. If tolerated, 1 Gm. every four hours is given by mouth after forty-eight hours. If one uses the sulfa drugs at all, a large dose is indicated.

The next day a blood level is taken, and we try to keep the level between 7 and 10 for four or five days after operation. However, I think that the sulfa drugs should be used with caution and only if there is a question of contamination during the operation.

In conclusion, may I state that any patient over 40 years of age who has continual cramps over a period of weeks or months should be suspected of having a lesion of the large intestine.

Conclusions

1. I have stressed the importance of an early diagnosis, particularly as it regards the general practitioner, who often is the first to encounter the early symptoms of carcinoma of the large bowel.

2. The method of choice for the average surgeon is that of the two-stage Mikulicz technic under spinal anesthesia.

3. Postoperative treatment should be routinely and carefully carried out.

4. In my study of a series of cases over a period of ten years, it would seem that a high operability is more desirable than a low mortality.

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Discussion

Dr. Arthur M. Dickinson, *Albany, New York*—I am very happy to open discussion upon this excellent paper by Dr. McGauley.

Carcinoma of the large bowel is an old and perhaps shopworn topic for discussion before such a group, but in view of the seriousness of the problem and improvements in technic, it does merit repeated study. There are certain essentials to consider when we attack this problem.

The first of these is the diagnosis. We must continue to be cancer-minded when faced with any intestinal problem. Anemia of unexplained origin, expecially when coupled with vague indigestion and loss of weight and strength, should make us suspicious. Too frequently we label an anemia as primary and subsequently learn that the patient has a malignancy with secondary anemia instead. In one such instance, a good medical friend who referred a patient to me still insisted upon his diagnosis of primary anemia even after I had removed a carcinoma of the colon. Also I have had the unfortunate experience of caring for several patients, who previously had been operated upon for drainage of a supposed appendicular abscess but who really had a perforating carcinoma of the cecum.

I feel that Dr. McGauley's warning about the pitfalls of radiographs can well be emphasized. When in doubt, have the study repeated in a month and perhaps by another radiologist. However, I do wish to point out that the reverse error is not infrequent when the radiologist does give a positive diagnosis but no tumor is found at operation. Certainly in any atypical case, where the clinical findings are at variance with the laboratory findings, a delay of a few days during which enemas or perhaps mild catharsis are given, followed by a repeated study of the bowel with a barium enema or even a contrast type of enema, may spare the patient an operation.

The preoperative preparation of these patients is most important. A period of at least five days in the unobstructed case and more for the obstructed patient is certainly necessary before definitive surgery is undertaken. In the former type, I generally put the patient on a high caloric, low residue diet. I do not use cathartics but may use enemas. My experience with sulfasuxidine has been most satisfactory; it decreases the volume of intestinal contents materially and cuts the rate of infection to a minimum. Obviously the obstructed patient will require tube drainage or a cecostomy for some days. In this connection, I would emphasize the point that the longer the patient is drained, the easier and the safer the operation becomes.

As Dr. McGauley points out, the total number of resections done by the general surgeons greatly exceeds the number done by experienced gastrointestinal surgeons. In the hands of the latter, technical procedures are varied with the indications and their experience is sufficient to insure fairly uniform results. The former, however, may be handicapped by lack of wide experience with the several types of procedures and by lack of trained assistants and so should follow some relatively safe type of operation. For this latter group, which includes many of us, the modified Mikulicz operation seems to be the answer. The risk of infection with it is almost nil. The objection that sufficient mesentery is not removed by this procedure is often raised. Here let me state that the competent surgeon can remove one-half of the colon by this method and take with it the attached mesentery. Delay in removal of the exteriorized segment is another old-time criticism. The immediate removal of this with the formation of the double colostomy and a tube in the proximal gut, as popularized by Lahey, eliminates this risk.

I do think that resection with primary anastomosis can be done in selected cases with very good results. In other instances, a short circuiting primary operation followed later by excision of the diseased segment will be indicated. In some instances, too, the Devine colostomy technic may be the choice.

We now are in the stage of transition; new technics of anastomosis are being popularized; drugs are available which seem to give protection against infection; we understand much about shock and water balance, both of which are very important in intestinal surgery; our anesthesia is better and safer; and, finally, our technical ability has shown great gains in the past ten years. With the support of these factors, we become more bold in our surgery and tend to break away from the time-proved ways of yesterday. I hope our advances will stand the test of time.

amination should be repeated after a month. If this examination is negative and the patient still has the same complaints, I believe he should have a thorough exploratory.

Such a procedure might make operable a lesion which would become inoperable after several months.

X-ray reports are occasionally misleading and often do not give the final word in making a diagnosis.

Another reason for a high mortality, as Garlock[7] has shown, is the poor condition of many patients who have carcinoma of the colon and rectum. Consequently, extra good pre- and post-operative care is needed.

Surgeons who are doing colon surgery have developed meticulous technic, which is difficult for the surgeon who is not doing colon and rectal surgery more frequently.

Case Reports

I should like to present two cases which are of unusual interest:

Case 1.—Mr. K., aged 33, was brought to the hospital in December, 1935, complaining of cramps in the abdomen.

No tarry or bloody stools were noted.

For the past few weeks the patient had had cramps extending across the upper part of the abdomen. The cramps would come and go, being worse three or four hours after meals. He did not vomit but felt nauseated. There was no bowel movement for two days.

Temperature, pulse, and respiration were normal; hemoglobin, 90 per cent; red blood cells, 4,500,000; white blood cells, 6,000.

The physical examination showed an undernourished young man. Examination of the head was negative, and the examination of the heart and lungs was also negative.

The abdomen was not scaphoid, but neither was it distended. There was some abdominal tenderness but no masses were felt.

Rectal examination showed some fecal matter, normal in color and consistency.

An x-ray was entirely negative, except for some slight distension of the whole colon.

Operation: Because of pain and cramps with no relief, I did an exploratory examination. The abdominal contents seemed normal, except for the distension of the whole colon. No palpable mass was felt. The liver was normal. The appendix was removed, and the patient was put on a liquid diet. He seemed to be improved for a short time, but the pain returned, and morphine had to be given for the pain. The patient became weaker, the abdomen was distended, and he finally died.

The autopsy showed a small, annular carcinoma of splenic flexure, which finally caused complete obstruction and rupture of the large intestine.

This case should have had a more thorough exploratory, especially of the splenic flexure region. The patient should have repeated x-rays after operation to determine more pathology than that found at operation.

Case 2.—This patient presented a similar case and was operated upon eight years later.

John S., age 31, was operated upon on January 2, 1943.

The patient had complained of cramps throughout abdomen, nausea, and vomiting.

He had always been in good health, but two weeks before admission to the hospital, he had had a similar attack. He complained of pain in abdomen, beginning twenty-four hours before admission. He had vomited several times, but his bowels had not moved in two days.

Physical examination showed a patient who looked very ill.

The temperature was 99 F., pulse, 100; respirations, 22. White blood cells were 11,000.

The heart and lungs were negative.

There was marked fullness of the abdomen, with tenderness and slight muscle spasm in the right lower quadrant.

Rectal examination produced no feces and no mass.

A flat plate of the abdomen showed some distention of the large bowel; otherwise it was negative.

A Miller-Abbott tube was passed and allowed to remain in the intestines, and twenty-four hours after admission an exploratory operation was done.

Operation: Under spinal anesthesia, a right rectus incision was made opposite the umbilicus. There was some straw-colored fluid in the abdomen. The small intestines were normal, and also the liver, gallbladder, and appendix were normal. The cecum, ascending, and transverse colon were markedly distended. On further examination, a small, annular mass was found at the splenic flexure. There were several glands in the mesentery. A cecostomy was done after decompressing the fecal contents of the large bowel. The cecum was brought out on the abdomen, and a mushroom catheter was inserted. Five days later the patient coughed and eviscerated several loops of small intestine. The patient was taken back to the operating room and put under spinal anesthesia. It was found that fecal matter was leaking around the catheter, which had become plugged. This fecal matter was covering the eviscerated small intestines. A rubber clamp was put on the cecum, and the small intestines and abdomen were cleaned with saline sponges and the whole area covered with 15 Gm. of sulfanilamide powder. The intestines were replaced in the abdomen, a large catheter was inserted into the cecum, and the wound was closed with catgut sutures. The patient had a stormy time, but ten days later the splenic flexure was resected, and the cecum was closed five days later. The patient was allowed to go home after ten days more.

This is a very unusual case from many angles. A young man, 31 years old, had no previous history suggestive of a carcinoma. The small lesion in the splenic flexure might have been overlooked. It also shows the value of sulfanilamide when one has a real indication. The patient made a very satisfactory recovery.

For one week before admission she had complained of pain in the lower right abdominal quadrant which became progressively worse. Forty-eight hours previous to admission it had spread to the lower left quadrant. There had been nausea but no vomiting. During this week the patient had been extremely constipated. On questioning her family, it was found that during the past few months the patient had noticed a slight loss of weight and an increase in constipation. Examination revealed a well-nourished, middle-aged woman. Her temperature was 104 F.; her pulse was 108. The white blood count was 19,200, with 90 per cent polymorphonuclears. There was marked tenderness and rebound tenderness in the lower right abdomen. Exquisite tenderness was present over the suprapubic region. Pelvic examination revealed a bulging of the posterior cul-de-sac with exquisite tenderness. We first thought that we were dealing with an acute appendicitis with a secondary pelvic abscess. An attempt was made to drain the abscess through the cul-de-sac, but since it was then determined that the mass was stony-hard, this procedure did not seem feasible. Two days later abdominal exploration revealed a diffuse adenocarcinoma of the sigmoid which had perforated and was adherent to the uterus and left tube and ovary. There were multiple abscess pockets in the pelvis. The pelvis was drained, but the patient died in twenty-four hours.

Case 4.—S. S. was a 49-year-old Italian man. He had been operated upon six years previously for a ruptured appendix. Six weeks prior to admission, he began to have severe pain in the lower lumbar region which at times was so severe as to prevent him from walking. At the same time he began to notice progressive constipation. He had not noticed tarry stools. He had lost 15 pounds within the past six weeks. For three days before admission there had been severe pain in the lower right quadrant during which time he had been nauseated. There had been no bowel movements for two days. Examination revealed a well-nourished man who appeared acutely ill. The abdomen was distended, and there was extreme tenderness in both lower quadrants with rebound tenderness on the right side. Rectal examination was negative. The white blood count was 12,800 with 88 per cent polymorphonuclears. Repeated enemas brought good results. The abdomen became less distended, and the pain was less severe. The abdominal tenderness gradually subsided, but extreme tenderness persisted in the left flank. Diverticulitis of the sigmoid was suspected, and a barium enema revealed an irregularity in the sigmoid. There was no obstruction. The x-ray was reported as suggestive of an inflammatory lesion although it was stated that a neoplasm could not definitely be ruled out. Operation revealed a large mass of intestines matted together, lying to the left of the umbilicus and in the lower left quadrant. The sigmoid and several loops of small intestine were involved. There were numerous pockets of pus between bowel loops. The abdomen was drained, and a cecostomy was done. The patient ran a gradual downhill course with a septic temperature and subsequently developed a deep jaundice. He died three weeks later. An autopsy revealed a diffuse adenocarcinoma of the sigmoid, with multiple perforations into the peritoneal cavity and no liver metastases.

Case 5.—A. P. was a 66-year-old colored woman. For ten years she had noticed a gradual enlargement of the abdomen, together with a hard mass in the lower right side. For two months there had been marked urinary frequency and frequent bowel movements. There had been no loss of weight, but she complained of progressive weakness. On admission the temperature was 99 F.; the pulse was 134. The white blood count was 23,500 with 84 per cent polymorphonuclears. The red blood count was 3,500,000. Hemoglobin was 66 per cent. There was abdominal distention and a hard, irregular mass occupied the lower right abdomen as high as the umbilicus. The mass could be felt on vaginal examination. There was a bulge in the posterior cul-de-sac. With a diagnosis of uterine fibroids, an operation was performed five days later. Because the general condition of the patient was poor, a quick supravaginal hysterectomy was done. An abscess containing about 500 cc. of foul pus was encountered posterior to the uterus. This was drained, but the patient died twenty-four hours later with a temperature of 107 F. Autopsy revealed an adenocarcinoma at the rectosigmoid junction with two perforations into the pelvic cavity. The surrounding lymph nodes were involved, but there were no metastases in the liver.

Case 6.—M. R. was a Greek housewife, 37 years of age. Seventeen years previously she had had an operation for a pelvic tumor in another hospital. Two months before admission, she had begun to have pain in the right upper quadrant. She had been on various self-prescribed diets, but the pain increased. Two days prior to admission, she began to feel faint and went to bed. Following this a pain in the lower left quadrant appeared. This pain radiated across the lower abdomen and to the back. She had vomited four times. She noticed no change in her stools. There had been no loss of weight. On admission, the patient appeared acutely ill and toxic. Her temperature was 105 F.; her pulse was 120. There was extreme tenderness with muscle spasm throughout the abdomen, with the exception of the left upper quadrant. There were no masses felt. Pelvic examination revealed a bulge in the posterior cul-de-sac and a profuse vaginal discharge. The red blood count was 3,490,000; the white blood count was 17,700 with 98 per cent polymorphonuclears. At that time the diagnosis was chronic cholecystitis in addition to pelvic inflammatory disease. Because of difficulty in localization, the patient was treated symptomatically. The temperature ran an irregular course. In about one week the tenderness in the right upper quadrant began to subside. Her bowels moved daily with enemas. At about this time a mass was felt in the right upper quadrant. It was slightly tender and was thought to be a large liver. At the end of two weeks, a tender mass could be felt in the lower left quadrant. The general condition of the patient became progressively worse, the mass in the lower left quadrant

PERITONITIS SECONDARY TO PERFORATION IN CARCINOMA OF THE COLON

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DURING recent years, the frequency of perforation secondary to carcinoma of the large bowel has been impressively brought to our attention. Seven instances of this condition on the Surgical Service at the Knickerbocker Hospital within a period of eighteen months serve as the basis for this discussion. That this phase of colon malignancy is generally considered rare has been emphasized by questioning many recent medical graduates as well as several general surgeons. The answer has invariably been to the effect that it is an infrequent occurrence. The opposite opinion was expressed by a few surgeons who have given carcinoma of the colon their special attention.

Perforation resulting in local abscess or peritonitis has been given scant attention by numerous writers on the subject of large-bowel malignancy during the last two decades. Few writers mention this aspect of the subject at all, and others mention it only casually. Few cases have been reported. These facts probably explain the impression that is held on the subject by the large part of our profession.

This subject received careful attention in the transactions of the Société de Chirurgie in 1906 and again in 1910. At that time the prognosis was considered extremely poor, and suggested treatment was only palliative. Since that time little has been written on this subject. Erdman,[1] in a review of 531 cases of carcinoma of the colon, stated that perforation occurred twenty times, an incidence of 3.7 per cent. Bargen and Cox[2] showed a perforation rate of 9.4 per cent in a series of 1,502 cases. Starr and Nason[3] reported in detail seven instances of perforation out of a series of 51 colon carcinomas. Meyer,[4] in reporting perforations of the gastrointestinal tract, states that among 151 cases, there were three perforations of carcinoma of the large bowel. One was in the transverse colon, one in the sigmoid, and one in the rectum. All of these were late cases with fatal results, the diagnosis being confirmed by necropsy.

Inasmuch as Knickerbocker Hospital receives most of its patients through an emergency ambulance service, acute cases are out of proportion to elective ones. Therefore, no attempt is made in this paper to report our seven instances of perforation as a part of a group of colon carcinomas, for this would give a distorted picture of the frequency of this complication. The following patients were admitted to the hospital within a period of eighteen months.

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Case Reports

Case 1.—R. W. was a 78-year-old, single, white woman. Three days previous to admission she began to have severe cramp-like pains to the right of the umbilicus, followed by persistent vomiting. There had been no bowel movements during that time in spite of repeated cathartics and enemas. There had been several similar but less severe attacks during the previous year. Physical examination revealed an advanced arteriosclerosis in a woman who appeared chronically and acutely ill. The abdomen was rigid throughout. At operation there was a spreading peritonitis. The cecum, ascending colon, and terminal ileum were markedly dilated. A cecostomy was done, and the peritoneal cavity was drained. The patient died in ten hours. Necropsy revealed a stenosing, infiltrating adenocarcinoma of the proximal portion of the transverse colon with almost complete obstruction. There was marked dilatation of the proximal colon. A perforation had occurred at the site of the carcinoma into the leaves of the transverse mesocolon, which was the seat of a large abscess. This had secondarily perforated into the peritoneal cavity. The liver showed no evidence of metastases.

Case 2.—M. O'M. was a white housewife, aged 37. This woman had been in the hospital eleven months previously with a diagnosis of salpingitis and pelvic abscess. She had been treated conservatively by a gynecologist with hot douches for about three weeks, following which the pelvic abscess was drained through an abdominal incision. At one time during her stay in the hospital, after a period of marked obstipation, she had had a spontaneous bowel movement containing much pus. No x-rays were made of her colon during that time. Three months before the present admission, she began to have bearing down pains in the lower right quadrant. Her bowels had been regular. On close questioning it was determined that her health had been rather poor throughout her stay at home. Examination revealed spasticity and tenderness in the lower abdomen, more marked on the right side, and a hard mass could be felt on the left side. It could also be felt on vaginal examination. She was operated upon two days later, and a large adenocarcinoma of the sigmoid was found which had perforated and was adherent to the uterus, tubes, and ovaries. There was free pus in the pelvis. The carcinoma was inoperable, so the pelvis was drained. The patient died forty-eight hours later.

Case 3.—N. K. was an Irish-American housewife, 50 years of age. She had had no previous illness.

which have perforated present much pericolic tumefaction and bowel-wall involvement at either side of the carcinoma itself. Therefore, the first roentgenologic study is likely to favor the diagnosis of an inflammatory lesion. The x-ray study should then aim at some method of detailed mucosal pattern examination. The so-called double contrast technic, whereby a barium enema is administered and after evacuation the bowel is partly inflated with air, gives very desirable information on this subject. Dixon and Weber[6] state that an accurate roentgenologic diagnosis can always be made of carcinoma with perforation. They point out the value of a therapeutic regimen aimed at alleviating the inflammation and the use of antispasmodic drugs as a preparation for the x-ray examination.

We feel that great caution should be exercised in administering barium enemas to patients who are suspected of carcinoma and who at the same time present evidence of inflammation within the peritoneal cavity. The pressure of the barium within the lumen of such a bowel may readily provoke a fresh perforation or more widely open a previous one. Our sixth patient showed an exacerbation of the abdominal signs after a cleansing enema and on the first attempt at administration of a barium enema.

Treatment should first be aimed at drainage of the abscess if it is determined that an actual collection of pus exists. A short-circuiting operation may be performed at the same time if obstruction is present. If the patient improves, a later resection of the carcinoma may be feasible. Charrier and Leibovici[7] point out that in the suppurative stage it is impossible to determine the extent of the cancer or its operability. They note that after the abscess has been drained, the lesion frequently appears to be smaller and that it may become operative. In small perforations in which the inflammation of the peritoneal cavity is limited to the immediate region of the growth, rest in bed plus such supportive measures as transfusions, infusions, and high calory diet may make the patient a sufficiently good risk for resection without previous surgery aimed at the inflammation itself. Drainage with exteriorization of the carcinoma has been successful in some of these cases. The extensive pathology present in all of our patients made treatment of the cancer itself hopeless. An exception may have existed in Case 2, had the real pathology been recognized on the patient's first admission to the hospital and again in Case 7, had the patient consented to operation on his first admission.

Summary of Cases

Seven patients, 5 women and 2 men, presenting perforation of a carcinoma of the colon are reported. The average age was 53, the youngest 37 and the oldest 78. Five of the carcinomas were in the sigmoid, and two were in the proximal portion of the transverse colon. Perforation occurred at the site of the carcinoma in every instance and in one (Case 6) additional perforations were present in the loop of bowel proximal to the lesion. The diagnosis was confirmed in 5 of the patients by autopsy, 6 by operation, the one patient not operated upon, being among those who were autopsied. Of the 5 patients on whom necropsy was performed, only one showed liver metastases. This was M. R. (Case 6), who had showed evidence of liver pathology on admission, four months before her death. In three instances, the predominating inflammatory symptoms on admission were on the right side of the abdomen, whereas the carcinoma was on the left. Obstruction was presented as a major factor on admission in 2 patients, and contrary to expectation both of these carcinomas were situated in the proximal portion of the transverse colon.

Conclusions

1. Perforation of carcinoma of the colon resulting in local or spreading peritonitis is more common than is ordinarily suspected.

2. Perforation may occur either at the site of the carcinoma or in the loop of bowel just proximal to it. Perforation is more likely to occur in the rapidly growing, fungating type of adenocarcinoma.

3. The diagnosis should always be considered in persons of cancer age who show evidence of peritoneal inflammation in spite of the absence of other signs of malignancy. As an emergency procedure more frequent stool examinations for blood will give a hint to the diagnosis. X-ray examination in the nonemergency case should be accurate if the proper technic is employed to study the mucosal pattern.

4. Treatment should aim at drainage of the abscess and later resection.

5. Prognosis is extremely poor, as treatment can usually be only palliative.

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increased in size, and the liver continued to enlarge. On two occasions while cleansing enemas were being administered and on the first attempt at barium enema, the patient collapsed. She complained of abdominal pain, and the pulse became thready. This observation led us to believe that there was a communication between the bowel and the peritoneal cavity. A barium enema was finally successful and revealed an obstruction, almost complete, of the proximal sigmoid. At this time the stools became positive for blood. The patient rapidly became weaker and died five months later. Autopsy revealed a diffuse adenocarcinoma of the sigmoid, with perforation and adherence to the urinary bladder and uterus. There were multiple ulcerations and perforations of the colon proximal to the tumor. The regional lymph nodes showed metastatic carcinoma. The right lobe of the liver was almost entirely displaced with metastatic carcinoma. There were small areas of involvement in the left lobe.

Case 7.—I. K., a 53-year-old man, was admitted complaining of cramps in the upper midabdomen, anorexia, and loss of 5 pounds of weight in two weeks. Examination revealed marked rigidity in the epigastrium and right upper quadrant. The temperature ran irregularly between 102 F. and 103 F. The white blood count was 18,200, with 80 per cent polymorphonuclears. Stools contained 4 plus blood. A barium enema revealed an irregular stenotic lesion with marked distortion of the mucosal pattern for a distance of 2½ inches in the proximal transverse colon. With bed rest the temperature gradually subsided, and the patient felt better. Refusing operation, he returned to his home two weeks later. Within a week he was readmitted with a recurrence of the fever and an increase in pain, a complete intestinal obstruction, and evidence of acute inflammation in the right upper quadrant. At operation a large mass, which was firmly fixed, was felt in the region of the hepatic flexure. An iliotransverse colostomy and cecostomy were done. The patient developed bronchopneumonia and died six days later. Autopsy revealed a polypoid adenocarcinoma of the hepatic flexure with infiltration of the intestinal wall and secondary perforation into the peritoneal cavity. There was acute localized peritonitis limited to the region of the carcinoma. The rest of the colon revealed multiple polyps. There was no evidence of metastases in the liver.

Perforation may take place either at the site of the carcinoma itself or through the devitalized distended portion just proximal to the growth. Ewing,[5] among others, has drawn attention to this fact, as well as to the fact that all carcinomas of the colon are sites of infection. He points out that fistulous tracts are frequently established into surrounding tissue or into another hollow viscus. He attributes most of the cachexia to the secondary infection and not to the tumor itself. In the cases under discussion it was the associated infection of the cancerous growth and its extension beyond the confines of the cancer which brought the patient to seek surgical aid. Perforation is more common in adenocarcinoma, especially in the rapid, fungating type of growth. The early disarrangement of the mucosa in this type of tumor makes an early focus for secondary infection from the bowel contents. When perforation occurs at the immediate site of the lesion, it is likely to be a slow process and adherence to the neighboring viscera is most probable. Therefore, a spreading peritonitis is rare. In obstructing lesions the site of perforation is frequently in the distended loop of bowel proximal to the lesion. Because of long-continued distention, the blood supply is infringed upon, the entire bowel wall becomes devitalized, and the lining of the bowel becomes the seat of colitis, with deep local ulcerations. With increased peristalsis causing increased intraluminal pressure on this loop, perforation may readily occur. It is in this site of perforation that spreading peritonitis is more likely to follow. Frequently the abscess formed locally from the original perforation may later break through into the free peritoneal cavity. Our first case is an example of that phenomenon.

The diagnosis of this condition may be most difficult. Undoubtedly a careful, detailed history gives the best clues. A story of slight weakness, constipation of some degree, and some loss of weight is helpful. Anorexia, nausea, vomiting, and chills are frequent late complaints that cause the patient to seek medical aid. When these people are first seen, the inflammation is generally the outstanding feature. As Erdman[1] points out, diverticulitis should receive the first consideration in a middle-aged person who gives no history of bloody stools, anemia, or emaciation, and who complains of sharp pain in the lower left quadrant. He likewise mentions that perforation of a carcinoma should not be under-rated. The frequency of bloody, mucous stools in diverticulitis makes that finding less helpful as a differential point. In none of our patients, with the possible exception of Case 6, was emaciation a factor. In the others, weight loss was negligible. In perforation of cancer of the colon, the first inflammatory signs may be found in the side of the abdomen opposite the lesion. This is due to the recent entrance of pus into a previously unmolested area of peritoneum. Cases 2, 3, and 4 are examples of this process. When this happens, one may readily be diverted from the real focus and be led to believe that he is dealing with appendicitis or salpingitis.

The x-ray diagnosis of this condition may not always be satisfactory. Generally an inflammatory lesion of the colon involves a longer segment of bowel than does a malignancy without perforation. The line of demarcation between normal and diseased bowel is more abrupt in carcinoma than in an inflammatory lesion. Carcinomas

labeled as "influenza." To exclude the possibility that this might be a missed case of typhoid fever, permission was obtained from W. T.'s physician for submission of suitable laboratory specimens. Although several stool cultures were negative for *Eberthella typhosa*, the Widal reaction suggested a recent typhoid infection. The search for a source common to both cases disclosed that these boys, while playing together, drank water from a spring not far from their homes. Within a short interval of time, two additional cases of typhoid fever occurred in boys from the same neighborhood. They had been drinking water from the same spring.

The suspected spring was located at the foot of a small hill. On the slope leading to the spring were four dwellings. In spite of the urban nature of this community, each of the four residences had a cesspool as the sole method for sewage disposal. The location of these cesspools suggested a possible association with the watershed of the spring.

This chain of circumstances indicated the desirability of a search for a typhoid carrier among the household members of the four homes. J. S., aged 60, living in the home nearest the spring, had come to live with his sister, the owner, in October, 1940, approximately three months prior to the appearance of the first case. He gave a history of having had typhoid fever in 1915. Sometime later he noted the gradual onset of gastrointestinal symptoms. This was followed by an acute attack of right upper-abdominal pain which was considered by his physician as indicative of gallbladder disease. In 1917 an outbreak of typhoid fever occurred in a California mining camp where he was employed as a mining engineer.

Laboratory examination revealed that J. S. was a typhoid carrier. The typhoid organisms recovered from the carrier and the cases were of an identical type (Craigie Type Fi).[1,2] Examination of the three other homes was negative.

*C. A Missed Case of Typhoid Fever.**—Miss M. C., a 22-year-old student nurse at a large general hospital, was reported to the Department of Public Health as having a case of typhoid fever with onset December 31, 1941. The epidemiologic investigation of this case revealed that this student nurse had worked, during the four weeks preceding onset of her illness, on a single surgical ward. Inquiry was then made concerning possible missed cases of typhoid fever or surgical cases which might have been of typhoid origin. This brought up for consideration three gallbladder cases that had recently been treated on that ward. All three patients had been discharged, and home visits were made to establish typhoid as a possible cause. One, Mrs. S. R., a 28-year-old housewife who underwent cholecystectomy on December 7 following a diagnosis of acute cholecystitis, had a positive Widal on January 21, 1942. She had been discharged from the hospital on December 27. A stool culture from this patient, taken on January 21, about six weeks following operation, was positive for *E. typhosa*. However, the history of this patient did not disclose a previous attack of typhoid fever. This, plus the fact that she was only 28 years old, made it appear unlikely that she was a typhoid carrier. A careful review of her recent hospital admission revealed an acute febrile illness with symptoms and a white count compatible with the diagnosis of typhoid fever complicated by acute cholecystitis. The student nurse, Miss M. C., had frequently changed the surgical dressings of this patient following her operation. The discovery of this previously unrecognized case of typhoid fever necessitated the search for the ultimate source of infection among the contacts of this newly discovered case. One such contact, her 64-year-old mother-in-law, gave a history of typhoid fever twenty-five years before. For several years this woman had had recurrent attacks of right upper-quadrant pain together with other symptoms usually associated with chronic disease of the gallbladder. It was also learned that five years ago, while she was visiting the family of a daughter residing in Canada, her son-in-law developed typhoid fever. Laboratory study of this suspect revealed that she is a chronic typhoid carrier and was, therefore, the source of infection for Mrs. S. R., who in turn infected the student nurse.

* This epidemiologic investigation has been reported in detail.[3]

Discussion

One can only conjecture as to the remarkable chain of events that caused only two cases among the large group of people who had attended the church supper (A). The demonstration of a common element to what at first glance appeared to be two sporadic cases was the prime factor in establishing the existence of this small epidemic. Had they been considered as two isolated cases occurring in a large community, the source of infection would without doubt not have been revealed.

Epidemic B is of particular interest as a small water-borne outbreak in an urban community. Recent literature[4] relative to the typhoid-carrier problem emphasizes the rarity of water-borne typhoid in certain sections of the country. Nevertheless, it must be remembered that even in areas where modern methods of sanitation have been utilized most extensively, water-borne outbreaks on a small scale are still a definite possibility. The discovery of a single missed case associated with a reported infection first called attention to the existence of this outbreak. The occurrence of two additional cases constituted the entire epidemic. Realizing the present-day infrequency of water-borne typhoid, particularly in the light of the modern sanitary conditions encountered in urban communities, the relationship between these cases might easily have been overlooked. Furthermore, the occurrence of so few cases might not even have suggested the possibility of water-borne typhoid. Under these circumstances the usual statistical computations employed to help demonstrate abnormal devi-

CERTAIN ASPECTS OF PRESENT-DAY TYPHOID EPIDEMIOLOGY

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ANY consideration of the problems associated with source-finding in typhoid fever must take into account the marked decrease in the incidence of this disease during the past two or three decades. It is apparent that epidemiologic methods which have been successfullly applied to typhoid fever during periods of increased prevalence must be modified in order to be equally effective when it occurs less frequently. Hence, source-finding in typhoid fever at present-day levels of incidence offers problems which are vastly different from those of thirty or more years ago when this disease was a common occurrence in the practice of every physician.

With the disappearance of the spectacular water- and milk-borne epidemics, there has been a remarkable diminution in both the number and the size of outbreaks. Most typhoid epidemics nowadays are definitely limited in extent. Nevertheless, when small outbreaks do occur, it it important that they be recognized as such. Since most typhoid infections are reported to health departments as single sporadic cases, it is not inconceivable that the epidemiologic relationship of the few units comprising a small outbreak might be completely overlooked. The cases composing such a missed outbreak would, under such circumstances, be considered as instances of sporadic infections.

To establish the existence of the small epidemic it is essential that all its component units be brought to light. In this respect the role of the missed case is of considerable significance. In the large epidemics which occurred many years ago the failure to recognize one or two of a considerable number of infections was of no great moment in establishing sources of infection. Nowadays the failure to identify any single case may become a serious omission in any epidemiologic investigation. Every available diagnostic aid must therefore be utilized to the fullest extent in order to help detect cases of typhoid fever. Although a typical case presents no great problem in recognition, many cases are decidedly atypical. Such cases are commonly misdiagnosed as influenzal or upper respiratory infection. If a small outbreak is composed of one or more missed cases, its existence may not become apparent.

Missed cases, although never recognized themselves, may produce secondary infections. Although the reported case remains under the supervision of the health department until it has been demonstrated to be no longer harboring typhoid bacilli, this precaution will not apply to the undiagnosed and unreported case. When the incidence of typhoid fever is at low level, such missed cases are proportionately of greater significance among the total number of typhoid infections in the community.

A search for missed cases should become an essential part of the investigation of all sporadic cases of typhoid fever. Whenever a contact to a reported case has been labeled with the diagnosis of "grippe" or "intestinal flu," it is important that such a person be considered as a possible missed case. Recent experience in Massachusetts indicates the necessity of an awareness on the part of the epidemiologist of the problems associated with the small typhoid outbreak. Three recent epidemiologic investigations are summarized to illustrate the salient features of this problem.

Case Reports

A. The Church Supper.—Mrs. E. S., a 29-year-old woman living in X, a city of 60,000, was reported to the State Department of Public Health as a case of typhoid fever with onset on June 1, 1939. Within a few days Mrs. A. N., aged 50, residing in the same community, was also reported as a typhoid fever patient. Since no other cases had been reported from the city of X, and since at first there seemed to be no obvious association between them, they were regarded as unrelated infections. When the initial study of these cases failed to reveal a source of infection, more consideration was given to the possibility of a common source. The women did not know each other. Nevertheless, further questioning brought out the fact that they had attended the same church supper, two weeks before the onset of Mrs. E. S.'s illness, and nine days prior to that of Mrs. A. N. Although the supper had been attended by a total of 125 persons, subsequent investigation revealed no other cases among the entire group. Nevertheless, all food handlers concerned in the preparation of the suspected supper were subjected to laboratory examination. One of these was found to be a typhoid carrier. Both of the women who contracted typhoid fever had eaten identical items of food at the supper. They had been seated at different tables.

B. Water-Borne Outbreak.—R. H., a 15-year-old boy living in a large urban community, came down with typhoid fever on January 3, 1941. Inquiry as to similar illness among his contacts revealed that W. T., his 15-year-old chum, had been confined to his home for a period of three weeks with an illness

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ORIGINAL STUDIES ON THE INTERNAL DYNAMICS OF THE INTRACAPSULAR CATARACT EXTRACTION

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IT HAS been the policy of some ophthalmic surgeons to throw discredit upon the procedure of the intracapsular cataract extraction. The conjectural remarks which they so frequently offer concerning the mechanical details of the intracapsular extraction are based primarily upon indirect reasoning. They claim that a relatively large degree of trauma is inflicted upon the eye during the delivery of the lens and that the eye undergoes deleterious changes which in time interfere with the patient's vision. There has been no objective proof presented, and it appears that this line of thought is at present unfounded. This type of operation in the hands of a qualified surgeon is accomplished with a certain degree of ease and with excellent visual results.

It was during the study of the zonular lamella of Berger[1] that the idea was conceived of analyzing the internal dynamics of the intracapsular cataract extraction by direct observation through the corneal microscope with the additional idea of presenting a method whereby one could study the effects of this procedure on the anatomic structures in the anterior segment of the eye. In this manner a scientific approach is established in which one can reason fairly accurately the merits this operation possesses, immediately postoperative.

These experiments are the first of their kind ever performed on human eyes. Employing the aspiration method, fifty intracapsular cataract extractions were performed on eyes enucleated from cadavers four to six hours after death. The youngest person was 38 years of age, the oldest 75. The details of the extraction were viewed through the corneal microscope from various aspects upon differently prepared specimens.

This paper will cover a description of the gross zonular apparatus, the anterior surface of the vitreous, and the relation of the lens to these structures in the normal eye, followed by more elaborate studies of these structures in eyes undergoing the extraction. Since these structures and their relations are fairly constant in the normal eyeball, a proper understanding of them will enable the surgeon to appreciate more fully the actual changes which occur during the operative procedure.

It is also desirable and important that one possess the basic histologic concepts of the structures in the anterior segment of the eye. A normal human adult eye was fixed in formalin, run through the various alcohols, etc., and sectioned serially (employing sagittal, transverse, and coronal planes). The stains used were Weigert, hematoxylin and eosin, and van Gieson, the last giving the best results. In this manner, a comprehensive study of the entire zonule of Zinn with all its intimate relationship was made.

Two human adult eyes with incipient lenticular changes which had undergone intracapsular extractions were also fixed, sectioned, and stained with van Gieson. The results of this elaborate study will be published in full at some later date. For the present, it can be stated that the procedure produced a subminimal amount of trauma to the structures in the anterior segment of the eye as shown by microscopic investigation. There was no evidence of a hyaloid tear grossly or microscopically and the ciliary epithelium in its entirety showed no damaging effects whatsoever. The vitreous base was perfectly intact in all sections analyzed.

The following description made with the corneal microscope embraces the normal anatomic structure and relation of the lens, zonule, and vitreous (anterior border layer).

Normal Anatomic Structure and Relation of Lens, Zonule, and Vitreous (Anterior Border Layer)

Before proceeding to an analysis of the suspensory ligament, it would not be amiss to describe the histologic unit of this system. The zonular fiber consists of a structureless, nonnucleated, glassy fiber.[2] These fibers appear very straight and taut in sections and differ from fibers in that they do not assume wavy undulations which characterize the vitreous fibrillae. This is a very important point in the differentiation of the two systems microscopically. The zonular fibers arise from the orbiculus ciliaris and unite with one another, forming larger fibers, and these in turn unite to form zonular bundles. They reach their maximal thickness during their course through the ciliolenticular space and dissociate themselves again into their histologic unit (zonular fiber) during its insertion into the cuticular membrane of the lens at the equator. They vary in thickness from 10 to 40 mu. A cross section of a zonular bundle reveals that it is made up of finer fibers. Distinguishing the

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ations in the incidence of any disease would have been of little value.

In the third investigation (C), a missed case of acute typhoid cholecystitis, was disclosed as the immediate source of infection for a student nurse on a surgical ward of a hospital. The missed case in this instance was established as the connecting link between the carrier, found to be the ultimate source of both infections, and the reported case of typhoid fever. Without the discovery of the missed case, this chain of infections could not have been established. Attention has been called[3] to the possibility of infection of hospital personnel by cases of unrecognized typhoid cholecystitis admitted to hospitals.

The clinical manifestations of typhoid fever are manifold. A complete familiarity with these manifestations will be of considerable value in detection of missed cases and in the establishment of the existence of small typhoid epidemics.

Summary

The decreasing incidence of typhoid fever ha brought into prominence the problem of th small typhoid epidemic. In the investigatio of sporadic cases of typhoid fever, consideratio must be given to the possibility that such case may at times be units of a small typhoid outbreak. A search for additional cases associated with any reported case will aid considerably in establishing the existence of small typhoid outbreaks. The missed case of typhoid fever is a significant factor in present-day typhoid epidemiology.

Three recent epidemiologic investigations of typhoid fever are summarized.

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3. Rubenstein, A. D.: New England J. Med. 226: 722 (April 30) 1942.
4. Saphir, W., Baer, W. H., and Plotke, F.: J.A.M.A. 118: 964 (March 21) 1942.

LEGAL MEDICINE CONFERENCE AND SEMINAR

1. Conference.—The Massachusetts Medico-Legal Society in conjunction with the Department of Legal Medicine of Harvard Medical School has arranged for an all-day Conference to be held at the Mallory Institute of Pathology, Boston City Hospital, on Wednesday, October 6, 1943. This will be open to any registered physician, lawyer, police official, criminal investigator, senior medical student, or other person whose duties are associated with medicolegal topics.

It will include lectures, demonstrations, and informal discussions concerning many subjects in legal medicine, particularly stressing results of some more recent methods. No limit has been made for the number of conference attendants, there is no fee, and advance application is not essential. Advance notice of intention to attend would be helpful, however, and should be addressed to Dr. William H. Watters, Department of Legal Medicine, Harvard Medical School, Boston.

2. Seminar.—The Harvard Medical School Courses for Graduates will offer a Seminar in Legal Medicine to occupy the week of October 4 to 9, inclusive.

The study is planned particularly for medical examiners and coroners' physicians, but will be open also to any other suitable graduate of an approved medical school.

The course will be practical rather than theoretic and will consist of autopsy demonstrations, technic and interpretation of laboratory tests, study of the day-by-day cases of a medical examiner, round-table conferences, and the many subjects now included in the widening field of legal medicine. In order that each participant may receive the maximum benefit, the enrollment has been limited to fifteen. For the Seminar the fee is $25. Application should be made on or before October 1 to Harvard Medical School, Courses for Graduates, 25 Shattuck Street, Boston, Massachusetts.

THE TIME ELEMENT

In the practice of medicine the importance and significance of the time element is frequently unrecognized. Many lives have been sacrificed on the altar of delay. This might be interpreted as a sad commentary on medical education and clinical acumen, if the entire truth were told.

Possibly the whole matter goes back to too much emphasis on scientific education. What a curious statement! Scientific education should make our professional service of infinite value. However, it often results in just the opposite. Too much emphasis in modern education may be placed on instruments of precision and laboratory studies in order to make a diagnosis. How easy it is in an obscure case to "send the patient to the x-ray man to learn what he says," or "to have blood and other laboratory tests made in order to reach a diagnosis." This, too often, is an example of the utmost in childlike simplicity. Our clinical sense is subjugated to scientific methods. If these do not confirm the diagnosis, or if they point to something else, we all too often supinely give up our clinical opinion and lean completely on the scientific data for the diagnosis.—*Editorial, Pennsylvania Med. J.*

gross and histologic arrangement; (2) histochemically each has different staining qualities; and (3) embryologically, they are separate systems. At the 85 to 100-mm. stage, one notices a condensation of the secondary vitreous which separates it from the zonular system anteriorly and which finally becomes complete at term.[3] Looking from above downward, one can see the irregular line of the ora serrata and then the much darker zone of the orbiculus ciliaris, from which arise by one or two elevations the ciliary processes with their small ridges and valleys concentrically fixed about the lens and finally, the posterior surface of the lens (Fig. 2A). The equator of the lens does not come in contact with the ciliary base and is separated from it by about 1 mm. This is the circumlental space and is occupied by the free portion of the zonular bundles.

The first structure that is seen from the posterior aspect of the suspensory ligament is a fine transparent pellicle which commences at the posterior border of the orbiculus ciliaris and extends forward (covering the inner surface of the ciliary body) as far as the equator of the lens. This membrane consists of a system of small cords seen as fine refractile bands, especially opposite the ciliary elevations. These are the posterior zonular bundles. The union of these posterior zonular fibers into very small cords is characteristic, and one notices about 2 or 3 of them for each fissure. This membrane is closely applied to the underneath layer at the level of the pars plana, as so beautifully described by Schwalbe,[4] and from which one can tear away the pigmentary layer after removing the membrane. By importing a tap to the lens, this membrane, which is in contact with the ciliary crests, wedges itself in between the ciliary fissures without going to its depths (Fig. 3).

A unifying semisolid cement substance enmeshes the small zonular cords and transforms them into a continuous membrane which is extremely thin and delicate except in those portions re-enforced by the zonular bundles. The presence of this membrane was verified after the examination of 50 human and 100 cats' eyes. This finding convinces one beyond doubt of the existence of an agglutinated interfibrillar cement substance. This membrane, furthermore, shows no perforations. Topolanski[5] and several other authors denied the existence of this substance, but unfortunately they did not possess the corneal microscope with which to make the necessary observations. Its demonstration can be easily shown with stains and gross dissection.

Anterior Surface.—After the removal of the cornea and the iris up to its base, another membrane can be seen analogous to the one described



FIG. 3. Posterior view. The vitreous has been removed. The lens (L) is tapped with a spatula (S). The zonular membrane (ZM) wedges itself between the ciliary fissures (CF) without going to their depths.

posteriorly, which is formed by the anterior zonular bundles (Fig. 4A). The lateral walls of the anterior two-thirds of the base of the processes are almost rectilinear in the direction from behind forward. The membrane is attached to the lens and lies in the interval between the tips of the ciliary processes and the equator of the lens. The posterior zonular leaf raises itself almost vertically while the anterior zonular leaf directs itself obliquely up and posteriorly to meet the posterior leaf at the junction of the posterior and middle third of the base of the ciliary processes. This membrane is also transparent and affords a good view for the study of Hannover's canal (the space situated between the anterior and posterior zonular membranes). The anterior zonular fibers which are condensed into bands do not attain the thickness of the posterior zonular bands. As soon as the anterior zonular bundles reach the ciliary processes, they proceed immediately into the depths of the valleys without preference for the lateral walls. The anterior zonular leaf is a semipermeable membrane which separates Hannover's canal from the prezonular space containing aqueous humor.

Lateral View.—To obtain a lateral view of the suspensory ligament, the anterior hemisphere is sectioned sagittally through the middle of the lens with a sharp razor. It is advisable to cut the sclera and ciliary body first with a scissors on either side as far as the equator and then use the razor to divide the lens. If an attempt is made to section the entire hemisphere without severing the sclera first, a tearing and distortion of the zonular system follows. This is a very delicate system and great care must be exerted in its preparation.



FIG. 1. Posterior view of the anterior segment. The anterior vitreous (V) being removed from the suspensory ligament (ZL) and the lens (L). S is the sclera. The suspensory ligament remained perfectly intact.

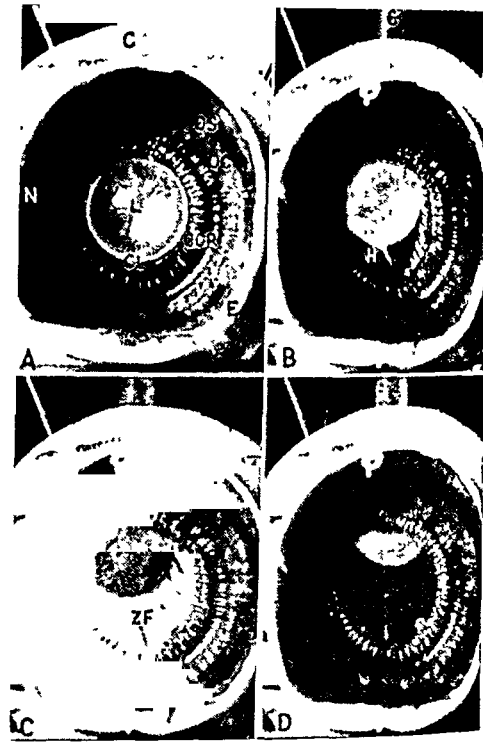


FIG. 2. Successive steps of an experimental intracapsular cataract extraction by aspiration (posterior view). The vitreous, cornea, and iris were removed. The fine details as observed through the microscope of a slit lamp (described under Sections A, B, C, and D) are not clearly defined in these photographs because of low magnification, fineness and transparency of structure, and poor stereopsis. The pictures are enlargements of prints taken with a Leica camera. In A, N indicates the nasal side; T, the temporal side; C, the cork rim; E, the equator; OS, the ora serrata; OC, the orbiculus ciliaris; COR, the corona ciliaris; CL, the circumlental space occupied by the anterior and posterior zonular membranes; and L, the posterior surface of the lens. In B, C is the glass cannula applied to the anterior lens capsule. There is traction on the lateral zonular fibers and ciliary processes. The ciliary processes superiorly are pulled forward and upward. *H* indicates a hole in the zonular membranes. In C, ZF indicates intact inferior zonular fibers with adhering agglutinated substance.

constituent elements is very difficult because of the thorough blending of these fibers by an intercellular cement substance. The insertion of these fibers in a brushlike fashion into the lens cuticle denotes the compound nature of these larger bundles. Histochemically, the zonular fibers stain differently from the vitreous lamellae and this aids one considerably in differentiating the anterior border layer of the vitreous from the individual zonular bundles, microscopically.

Suspensory Ligament.—The eye was prepared as follows: A fresh normal eye was sectioned into two parts through the equator; the posterior segment was discarded. With a very fine pair of scissors the cornea and iris were removed. A decided resistance was encountered when the vitreous was detached from its base. The remaining anterior vitreous peeled away from the posterior zonular membrane and the posterior lens surface with relative ease except at the retroequatorial region of the lens, where a slight resistance was met.

Posterior Surface.—The striking anatomic point here was the complete independence of the vitreous on the one hand, from the lens, and the posterior zonular membrane, on the other. The vitreous plays no role in the gross or microscopic architecture of the zonular system. This is a very important practical point, especially in reference to the intracapsular cataract extraction. The complete vitreous with all its coverings can be easily removed, leaving the zonular apparatus completely intact (Fig. 1). This has been performed on 100 eyes (human and cat). The vitreous is independent of the zonule of Zinn for the following reasons: (1) by nature of their

performed in the following manner: After the cornea and iris have been removed, the anterior zonular bundles are severed completely about the lens, leaving the posterior zonular bundles behind. By pushing the inferior equator of the lens slightly up and backward, the superior part of the lens is brought forward with the attached posterior zonular bundles. These are then severed without damage to the hyaloid. In this way, the remaining posterior zonular bundles can be broken completely. The hyaloid was then stained with azure blue (stains zonular bundles blue), and no zonular bundles were visible with the high-power corneal microscope. The entire vitreous was detached posteriorly, leaving the zonular apparatus intact. The anterior border layer of the vitreous was stained with azure blue, and again no zonular fibers were found as far back as the vitreous base. The absence of zonular fibers in the hyaloid was also demonstrated after intracapsular cataract extractions. The above is further proof of the absolute independence of the hyaloid from the zonular apparatus and of the existence of a virtual space (Petit's canal) which lies between the posterior zonular leaf and the hyaloid.

Attachment of the Zonular Bundles to the Lens

The zonular bundles dissociate themselves into their constituent elements at different levels along their path of insertion onto the lens. This layer is the much-disputed zonular lamella of Berger. The pre- and retroequatorial fibers, insert themselves in a tangential manner into the thin pericapsular membrane of Retzius, which surrounds the true capsule of the lens. The equatorial bundles insert, however, in a perpendicular fashion and can be seen as conelike projections from the cuticular membrane. Very few, if any, penetrate into the true capsule of the lens. The insertion ring of the anterior zonular fibers occupies a larger surface area of the lens than the posterior zonular fibers, and both are marked centrally by a sinuous line. This was easily demonstrable after Hannover's canal was injected with Mallory blue.

Anterior Border Layer of the Vitreous (Hyaloid Membrane)

About the middle of the orbiculus ciliaris, a thickening of the external framework of the vitreous again appears. It stretches out over the whole of the anterior surface of the vitreous. The hyaloid membrane separates the vitreous from the suspensory ligament and the lens and is called the anterior border layer. This layer is formed by the condensation of a large number of superficial parallel lamellae of the vitreous. The

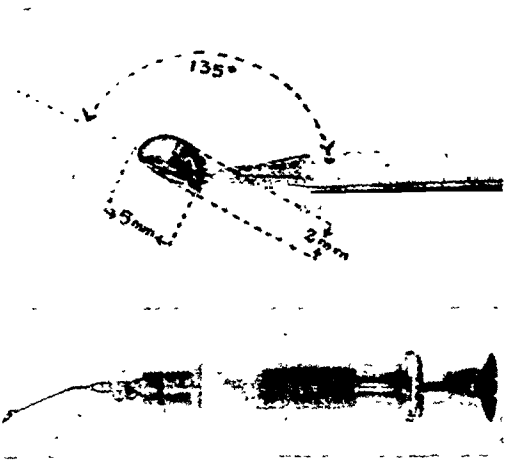


FIG. 6A. A modified Barraquer's glass cannula for suction in intracapsular cataract extraction.
FIG. 6B. A Dimitry cataract suction disk.

hyaloid is thin and transparent and remains unchanged up to the equator of the lens.

On the anterior face there is a depression, the della or fossa patellaris, and this is the negative cast of the posterior surface of the lens. Running out from here to the shoulder of the vitreous, there are grooves corresponding to the ciliary processes. The vitreous is fixed most firmly to the ciliary epithelium in a zone some 1.5 mm. broad immediately adjacent to the ora serrata. This zone is called the base of the vitreous and its significance other than purely anatomic is important. All of the vitreous fibrils spring from this region and fan out in all directions. The majority enter into the nucleus of the vitreous.

Posterior to the vitreous base, one notices a shell of condensation becoming thinner as it goes back because it continually gives off fibers toward the center of the vitreous body. The vitreous, anterior to the base, is united to the inner surface of the ciliary body only here and there by delicate processes and mediately by zonular fibers.

A further although considerably weaker line of adherence to the lens occurs in the form of a ring, 8 to 9 mm. in diameter, and is called the ligamentum hyaloideo-capsulare of Wieger.[9] Elsewhere, the vitreous is separated from the lens by a capillary space.[7]

Studies During Experimental Intracapsular Cataract Extractions

In the beginning of the studies, it was decided to use a glass-constructed cannula which had approximately the same measurements as the Barraquer's instrument (Fig. 6A). This works on the principle of ordinary water suction. Since then the Dimitry cataract suction disk (Fig. 6B)

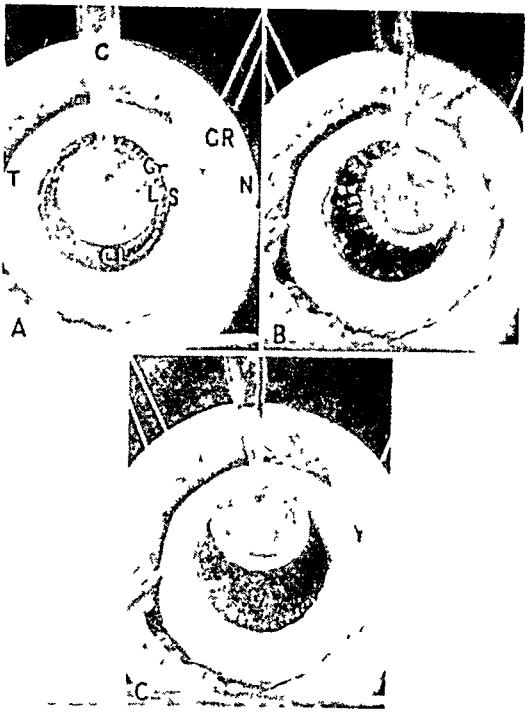


FIG. 4. Successive steps of an experimental intracapsular extraction by aspiration (anterior view). The vitreous, cornea, and iris were removed. In A, N indicates the nasal side; T, the temporal side; C, the cannula; CR, the cork rim; S, the cut edge of the sclera; CR, the ciliary ridge; CL, the circumlental space occupied by the zonular membranes; and L, the anterior surface of the lens. B and C demonstrate stretching and rupturing of individual zonular fibers. Many holes are visible. The ciliary ridges superiorly project forward and upward.

The zonular system is seen as a triangular canal and the name "triangular ligament" was given to it by Merkel[6] (Fig. 5). The base is formed by the equator of the lens; the anterior and posterior zonular leaves form the anterior and posterior walls, respectively; and the junction of the two previously mentioned membranes at the base of the ciliary processes forms the summit of the triangle.

In 1723, Petit injected air into the potential space between the hyaloid and the posterior zonular membrane, producing artificially what was subsequently called Petit's canal. A similar injection of air was made by Hannover in 1852, around the periphery of the lens between the anterior and posterior layers of the suspensory ligament, and it was accordingly given the name "Hannover's canal."

After injections of various dyes (picrocarmine, azure blue, and Mallory blue) into Hannover's space and many dissections of its anterior and



FIG. 5. Sagittal section of a human eye. The boundaries of the triangular ligament of Merkel are clearly shown. Also known as Hannover's Canal. L, lens; CP, ciliary process; S, sclera.

posterior boundaries under view of the corneal microscope, one is definitely convinced of its existence.

Relation of the Zonular Fibers to the Ciliary Processes

The entire base of the ciliary process lies in the prezonular space—that is, in the posterior chamber which is situated in front of the triangular ligament and is constantly bathed with aqueous humor. The anterior and posterior zonular bundles intermingle with one another at the base of the ciliary process, and some of them crisscross plane by plane. The single zonular membrane which extends backward caps the posterior third of the ciliary processes intimately and is partially isolated from it. The attachment of the ciliary pigment cells underneath consists primarily of fine supporting fibers, and it is possible to detach the zonular layer in its entirety in this region without carrying away the pigmented cells. The older histologists stated that the prezonular space was continuous as far back as the ora serrata. It has definitely been shown, however, that this conception was erroneous. The posterior chamber extends up and posteriorly as far as the middle of the ciliary valleys.

Relation Between the Posterior Zonular Leaf and the Hyaloid Membrane

In 1893 Berger[7] stated that the posterior zonular leaf had nothing to do with the hyaloid. Recent investigations with the high-power slit lamp and gross dissections substantiate this concept. Air[8] and various dyes have been injected into this space time and again. On many occasions it has been possible to sever all the zonular fibers (anterior as well as posterior). This is

(Fig. 7). As soon as the bundles broke, there was a quick recoil of the ruptured ends in opposite directions (comparable to the severing of a stretched elastic). One end was pulled toward the posterior ciliary valley and the other end onto the lens proper in the region of its attachment. One could plainly see the adhering torn agglutinated cement substance to the individual zonular bundles.

When the lens was completely delivered, the remaining structures resumed their former shapes and positions with the exception of the superior half of the circumference. Here the moderately curved ciliary processes and the corresponding adjacent orbiculus ciliaris were drawn slightly forward from the underlying sclera. By teasing with a fine needle the surfaces of the ciliary valleys, the lateral borders of the ciliary processes, the anterior orbiculus ciliaris, and the pre- and retroequatorial regions of the lens, the severed zonular bundles and remnants of the semisolid substance could be picked up and demonstrated easily.

Section B: Anterior View with Vitreous Removed

The preparation of the eye was exactly like that under Section A and mounted so that the anterior view was available for study (Fig. 4). The demonstration of the anterior two-thirds of the bases of the superior and superolateral ciliary processes being drawn forward and straddled by the tense zonular membranes was unusually interesting from this view. During the extraction, we noticed that the superior zonular bundles were curved over the iris root and the ciliary ridges. These two structures formed a resistance bar which facilitated early rupture of the superior zonular bundles. The inferior and inferolateral zonular bundles reached their maximal limit of stretching before they began to tear. By injecting Hannover's canal, as in Section A, and studying the extraction by transillumination, we again visualized the rupturing of the zonular bundles closer to their lenticular insertion. This view was presented to supplement the posterior view as described in the previous section.

Section C: Posterior View with Anterior Border Layer of the Vitreous Intact

The structures in the anterior segment appeared smaller and distorted after the vitreous body had been sectioned through the equator. This followed, since the posterior portion of the remaining half of the vitreous formed an irregular concavity which acted as a myopic cylindric lens (Fig. 8).

The lens and a corresponding area in the hyaloid membrane were drawn forward after the Dimitry disk had been applied. The surrounding hyaloid membrane followed more slowly. A grayish-black concentric ring was noted at the retroequatorial region of the lens. This corresponded to Egger's line, the outermost circle of contact, which exists between the hyaloid membrane and the posterior lens capsule. The posterior zonular bundles were seen indistinctly because of the intervening hyaloid membrane, and evidence of their stretching and tearing on the anterior surface of this membrane was noted inferiorly. Superiorly, the hyaloid membrane was placed under greater tension with the rising lens. This was indicated by the following signs: (1) the hyaloid membrane wedged itself in between the ciliary fissures without going to their depths, and (2) an indentation of the membrane was present between the ciliary ridges and the rising portion of the membrane which was still attached to the posterior lens capsule.

The tension which resulted from the increased stretching of the hyaloid membrane and zonular bundles was usually transmitted backward along the inner surface of the ciliary body. The aforementioned traction, plus the possible transudation of serum from the relaxed choroidal blood vessels into the suprachoroidal space, was usually sufficient to cause a partial detachment of the ciliary body (Section A). In order to appreciate this change, it must be remembered that the outer surfaces of the ciliary body and anterior choroid are loosely attached to the sclera by delicately long, thin suprachoroidal lamellae. Consequently, in these areas direct attachment of the ciliary body and the choroid to the sclera is almost negligible.[10,11] Since all the zonular fibers arise from the entire surface of the orbiculus ciliaris, any moderate degree of traction on it should be sufficient to detach the ciliary body from the sclera. This picture was duplicated in the majority of the extractions performed in the experiments.

When the extraction was almost completed, the superior indentation and the impressions of the ciliary fissures in the hyaloid became less and less accentuated. This occurred because of the gradual separation and retraction of the membrane from the posterior lens capsule from above downward. At this stage, all of the zonular bundles had ruptured inferiorly and laterally. The hyaloid membrane occupied the space immediately behind the iris at the end of the extraction.

Section D: Anterior View with Vitreous Intact

During the extraction of the lens, an added resistance could be felt other than that offered by the anterior and posterior zonular bundles (Fig. 9). As the hyaloid membrane was hidden by the presenting lens, one was obliged to study it inferiorly only after several holes had been



FIG. 7. High power. Ruptured zonular bundles (ZB) with the adherent torn interfibrillar cement substance. Zonular bundles emerging from the ciliary valleys (CV). L is the lens.

has been employed with very satisfactory results. To maintain stability of the prepared enucleated eyeball during the experiments, it was necessary to prepare a circular rim from plastic material possessing a diameter of 28 mm. The eyeball was then sutured firmly to the rim by means of the four recti muscles. This was then placed into the prepared groove of a cork base which had been attached securely to the chin rest of a slit lamp.

All of the following experimental intracapsular extractions were observed through the corneal microscope after the prepared eyeballs were attached in the manner described. By means of this procedure, the mechanical details of the operation and the effects on the anatomic structures in the anterior segment of the eye were viewed. A modified Barraquer's technic without tumbling of the lens was employed for all of the extractions.

The descriptions to follow will be divided into four sections, each section embracing a different view. The photographs in Figures 2, 4, 8, and 9 demonstrate the successive steps of an intracapsular extraction from various aspects. Owing to photographic difficulties, poor stereopsis, and fineness of structure, it was impossible to illustrate clearly the many fine, detailed changes which occurred during the procedure.

Section A: Posterior View with Vitreous Removed

After a freshly enucleated human eyeball had been sectioned through the equator, the entire vitreous body was removed. A marked degree of resistance was encountered at the base of the vitreous and much less resistance when the vitreous was separated from the posterior lens capsule. The cornea and iris were completely removed. The anterior segment was mounted as previously described so that the posterior view of the anterior segment was visible (Fig. 2).

The Dimitry cataract suction disk was applied a little above the center of the anterior lens capsule. The lens was drawn forward and upward with side-to-side movements, placing the anterior and posterior zonular bundles under tension. The stretching of the bundles was clearly seen from 4 to 8 o'clock. The ciliary processes from 10 to 2 o'clock, which were straddled by the zonular membranes, shifted with the immediately adjacent structures forward and sideways with each horizontal excursion of the Dimitry disk Below, the ciliary processes and the anterior orbiculus ciliaris were pulled forward and upward.

When the traction on the lens was released, the ciliary processes resumed their former shapes and several rents were seen in the zonular membranes at 5, 7, 11, 12, and 1 o'clock. These rents represented the ruptured zonular bundles and tears in the surrounding interfibrillar cement substance. In similar experiments, tears were noted in different places at the same stage of the procedure. This probably signifies that there are other factors to be considered, such as: the varying strength of the zonular bundles, the type of operative procedure employed, etc. When greater traction was resumed, the foregoing picture was reproduced but with more evident pull on all the structures concerned. Some of the inferior zonular bundles were stretched as much as 4 mm. before they began to rupture. With the lens midway in delivery, the inferolateral and lateral zonular bundles were stretched to their maximum in a straight line, and the breaking occurred nearer to their lenticular attachment. This was observed by the following method: A dilute solution of azure blue was injected into Hannover's canal and the extraction viewed by transillumination. The traction pull was transferred later in the extraction to the remaining intact superior and superolateral zonular bundles.

The zonular bundles broke and the interfibrillar cement substance tore gradually but constantly from the beginning to the end of the extraction

When an attempt was made to deliver the lens in a tangential manner, it separated easily from the hyaloid. This occurred as soon as part of the ligamentum hyaloideo-capsulare ruptured. It required only a very slight degree of traction. This was followed by the entrance of the atmospheric pressure between the hyaloid and the posterior lens capsule, resulting in neutralization of the negative pressure which originally existed here. This mechanism facilitated further separation of the two remaining surfaces up to the completion of the intracapsular extraction. The above dynamics can be demonstrated by using a plus 14.00 spherical lens with a corresponding myopic lens, whose curvatures of contact coincide exactly.

With the extraction of the lens complete, the hyaloid membrane became entirely visible. A large depression was noted which corresponded to the patellar fossa. In several experiments, herniation of the membrane was found instead of the usual depression. Many light-grayish bands were visible in the membrane, some assuming linear configurations of varying sizes, while others appeared circular. This was a characteristic tendency assumed by the superficial lamellae of the anterior border layer of the vitreous. The hyaloid membrane was thin, transparent, and offered an elastic resistance to an applied force. When the intravitreous pressure was increased (pressure on the sclera posteriorly), the anterior vitreous bulged forward in a conelike projection. No vitreous was expressed during this manipulation. On releasing the pressure posteriorly, the projection cone anteriorly disappeared and the concavity of the patellar fossa was resumed again. If a tear was made in the hyaloid membrane and pressure then applied, the vitreous flowed freely from the site of the tear. The hyaloid was torn easily when punctured and the edges of the wound gapped because of the inherent retractility of the membrane.[12] In the majority of the experiments, the rim of the hyaloid membrane adjacent to the fossa occupied the space immediately behind the iris. The anterior lens capsule was made to rupture during the course of an intracapsular cataract extraction. The nucleus and most of the free cortex was aspirated at this time. By grasping the capsule of the lens at the equator, it was possible to peel away slowly the entire capsule from the hyaloid membrane without producing any trauma to this structure (Fig. 10).

Comment

The moderate degree of shifting of the corona ciliaris and the anterior part of the orbiculus ciliaris which was observed during the original experiments in 1937, under Sections A and C, was misleading. The impression was given that a relatively large traction force was being exerted upon these structures. The present experiments demonstrated that this occurred because the ciliary body had been previously detached from the sclera. This separation was favored by two important factors: (1) the early severing of the delicate and infrequent lamellae in the suprachoroidal space which connect the ciliary body to the sclera, and (2) the decrease in intraocular tension immediately after the corneal section, which resulted in transudation of serum from the relaxed choroidal blood vessels into the suprachoroidal space.[10,11] Since the zonular fibers arise in their entirety from the complete surface of the orbiculus ciliaris, any traction exerted upon them would in turn be transferred to the internal surface of the ciliary body. Such traction therefore would cause a relatively grea er shifting of the ciliary body because of its previously induced detached state.

C. S. O'Brien[13] examined a series of 50 patients postoperatively (from the first to the seventh day) and found flat choroidal detachments encircling the entire periphery in 33. The remaining patients exhibited partial separations. Another group of 92 were studied by O'Brien[14] during or immediately after operation and 86 demonstrated choroidal detachments, an incidence of 93 per cent.

It has been known for a long time that detachments of the ciliary body and anterior choroid can follow other intraocular surgical procedures, such as trephines, Lagrange's,[15] and extracapsular cataract extractions. Any operation which causes a fall in the intraocular pressure produces a state which is conducive to detachments. It is conceivable, therefore, that the traction on the zonular fibers during an intracapsular cataract extraction is only partially to blame for the ciliary body and anterior choroidal detachments. Whether or not these separations produce detrimental changes to the integrity of an eye cannot be answered at present.

Experimentally, Csillag[12] performed a number of intracapsular extractions on pigs' eyes and observed that the lamellae of the hyaloid membrane separated with moderate difficulty from the posterior lens capsule. The hyaloid invariably followed the lens during its delivery and separated from it at right angles to the axis of dislocation. The negative pressure between the posterior lens capsule and the hyaloid was unusually strong in the pig's eye. A similar pressure was found to exist in the human eye but to a lesser degree. The experiments in Sections C and D prove that such a force normally exists between the lens and the hyaloid membrane.

Two other experiments which were performed

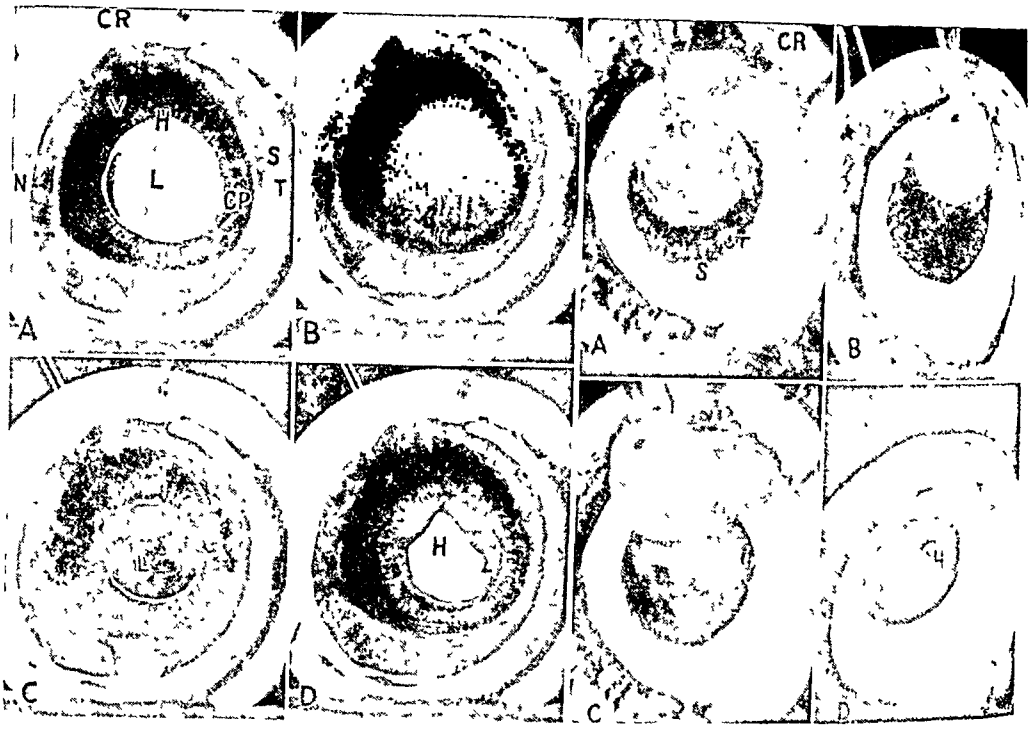


FIG. 8

FIG. 9

FIG. 8. Successive steps of an experimental intracapsular extraction by aspiration with the anterior surface of the vitreous intact (posterior view). The cornea and iris were removed. In A, N indicates the nasal side; T, the temporal side; CR, the cork rim; S, the cut edge of the sclera; V, the anterior surface of the vitreous; CP, the ciliary processes; H, a highlight; and L, the posterior surface of the lens. In B the ciliary processes and the hyaloid membrane (HM) superiorly are lifted upward and forward. The membrane above is indented between the rising lens and the ciliary ridge. The zonular fibers are rupturing below. In C, many inferior zonular fibers are ruptured. With gradual separation of the lens, the traction on the superior ciliary processes and the hyaloid membrane diminishes. The hyaloid membrane is seen clearly with its regular, grayish, condensed lamellae. In D, the lens has been delivered. H indicates a large highlight on the hyaloid membrane. The superior ciliary ridges point forward and upward.

FIG. 9. Successive steps of an experimental intracapsular extraction by aspiration (anterior view). The cornea and iris were the only structures removed. In A, CR indicates the cork rim; S, the cut edge of the sclera; C, the cannula; Cr, the ciliary ridges; and L, the anterior lens capsule. Stretching of the zonular membranes is demonstrated. In B, many inferior zonular fibers have ruptured. In C, the hyaloid membrane is indented above but is still adherent to the inferior part of the posterior lens capsule. The ciliary ridges are projecting forward and upward. In D, a highlight (H) is shown in the depth of the fossa patellaris. The lens has been delivered.

produced in the anterior and posterior zonular membranes.

The hyaloid membrane separated from the posterior zonular membrane with a greater facility than it did from the posterior lens capsule. This was possible since air and dyes had been injected separately between the hyaloid membrane and the posterior surface of the zonular system. In previous experiments, it appeared that very fine fibers were rupturing between the two surfaces during the extraction, but recent studies showed that it was the breaking up of larger fluid droplets into smaller ones.

The following experiment was performed to furnish further proof of a definite resistance offered by the hyaloid during intracapsular cataract extraction. The anterior and posterior zonular bundles were cut through concentrically without disturbing the lens from the patellar fossa, and an attempt was made to remove the lens by drawing it directly forward in the axis of the eyeball. A decided resistance was felt, even though the lens had its zonular bundles detached completely. On removal of the lens in this manner the separation occurred very slowly. The patellar fossa, which was concave, now became convex (herniated) and in this way the separation of the hyaloid membrane was effected concentrically from the equator of the lens.

The lens was held in the patellar fossa mainly by a negative pressure and partially by the questionable ligamentum hyaloideo-capsulare

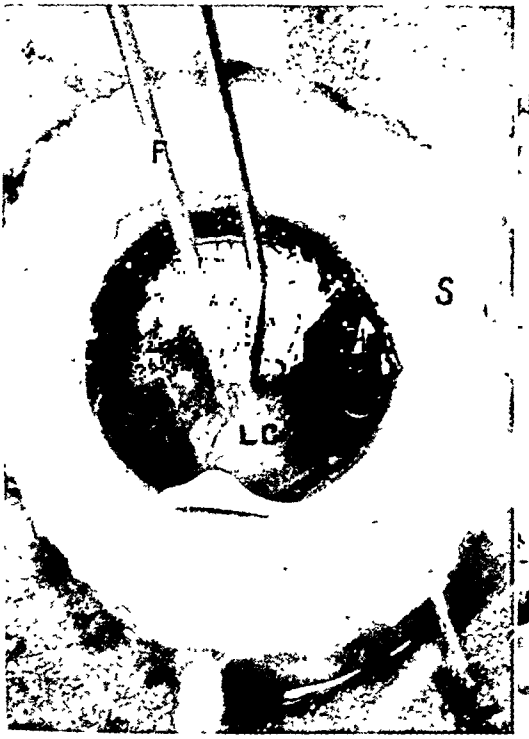


FIG. 10



FIG. 11

FIG. 10. Anterior view. The lens capsule (LC) is grasped, after being ruptured, and slowly peeled away from the hyaloid membrane (H). F, forceps; S, sclera.

FIG. 11. Posterior view. The hyaloid membrane (H) is picked up with two pairs of forceps (F) and placed on tension. S, sclera.

thelium on one side and the zonular fibers on the other side all along the surface of the orbiculus ciliaris.

2. Zonular fibers are not found at the ora serrata or immediately posterior.

3. The anterior border layer of the vitreous (hyaloid) possesses all the characteristics of a membrane (Fig. 11). It represents the condensation of the most superficial parallel lamellae of the vitreous and is easily thrown into circular folds. The border layers of the vitreous can be teased out in the form of membranes, each of which is resolvable into fibers.[19]

4. A thicker layer is first separated from the base of the vitreous, and this extends along the inner surface of the retina backward as the posterior border layer. This layer is thickest immediately at the ora serrata; farther back it is always thinner since the innermost layers constantly turn off into the interior of the vitreous. Some have mistaken the posterior border layer near the ora serrata for a ligamentous structure connecting the hyaloid to the retina. This is contrary to all histologic concepts.

5. The zonular cleft is not a free open space. It merely represents a thinning out of the peripheral frame work of the anterior border layer.

6. The existence of the ligamentum hyaloideocapsulare is still a controversial subject in the microscopic realm. It cannot be demonstrated grossly.

7. The anterior hyaloid is entirely independent of the lens and the posterior zonular membrane (*a*) because of the gross and histologic arrangement; (*b*) because, histochemically, each has different staining qualities; and (*c*) because it is independent embryologically. When the vitreous is removed completely, the suspensory ligament remains intact. There were no zonular fibers to be seen in the anterior border layer after it was stained with azure blue.

8. The posterior surface of the lens is held in the patellar fossa by a negative pressure. It is this pressure which is neutralized by the atmospheric pressure during the delivery of the lens intracapsularly.

9. Hannover's canal (triangular ligament of Merkel) occupies the cilio-lenticular space. The two walls of the triangle are formed by the anterior and posterior zonular membranes, the summit by the junction of these two membranes at the base of the ciliary processes, and the base by the equator of the lens. The canal is filled with a viscous substance.

10. Petit's canal is a virtual space found between the posterior zonular membrane and the hyaloid membrane. The walls of the canal stretch when either air is insufflated or dyes are injected into this space. These experiments tend to show that the existence of this canal is quite possible.

11. The anterior and posterior zonular membranes meet at the base of the ciliary processes and intermingle their bundles so that a single membrane is formed. This continuous blended layer proceeds posteriorly where the zonular bundles dissociate themselves into their constituent elements (zonular fibers) at different planes along their

many times, demonstrating conclusively the strong negative pressure, were as follows:

1. The anterior and posterior zonular membranes were severed completely around the entire circumference of the lens without disturbing the posterior lens capsule from the patellar fossa. The stump of the optic nerve was held with the lens facing downward. The lens did not fall out of the patellar fossa because the surfaces of contact were held together by a negative force.

2. A human eyeball was severed through its equator. The anterior vitreous was separated from its firm attachment to the ora serrata and the immediately adjacent orbiculus ciliaris up to its lenticular union posteriorly. The cut edges of the sclera were grasped with forceps and the anterior segment held in such a manner as to permit the vitreous to hang downward. The loosening of the hyaloid from the lens took place with difficulty. It was necessary to grasp the vitreous behind the lens and pull downward gradually before effecting the separation of the hyaloid from the posterior lens capsule. Examination of the hyaloid showed it to be perfectly intact after this manipulation. No holes were discernible and no zonular fibers demonstrable after staining with azure blue.

The separation of the hyaloid membrane from the inner surface of the anterior half of the ciliary body to which it is united directly only here and there by delicate processes and mediately by zonular bundles was shown in Section D. It is not possible to observe this clinically because it is not within the range of visibility ophthalmoscopically. With the corneal incision healed and drainage re-established in the anterior chamber, a readjustment of the partially detached hyaloid to its former position over the ciliary processes will very likely follow.

A case was recently reported by Bassin[16] of detachment of the vitreous in the area adjacent to the ora serrata (base of the vitreous) following intracapsular extraction. Slit lamp examination showed a whitish-gray membrane with a thickened margin and folds running to it. The membrane was in the frontal plane oscillating slightly on extreme motion of the eye. Bassin thought that the detachment of the vitreous was caused by the pressure on the eye and also by massage during the difficult delivery of the lens.

It was only after the vitreous base had sustained marked trauma directly that it was possible to observe in several of the experiments (Section D) a partial detachment of the vitreous base.

The amount of trauma inflicted on the vitreous base during an intracapsular extraction is negligible. One knows from surgical experience the ease with which the zonular bundles rupture and the lens is delivered.

Retinal detachment may occur after the base of the vitreous has separated, since the vitreous takes part of the ciliary epithelium with it, and the end of the retina loses its attachment. But it is very doubtful that such a mechanism operates in retinal detachment following intracapsular extraction. A more plausible possibility may be found in the following explanation: After the partial separation of the anterior surface of the vitreous from the inner surface of the ciliary processes, plus the great tendency of the vitreous to protrude into the anterior chamber after the loss of the capsulo-suspensory diaphragm, it appears that the constant surging of the vitreous back and forth may eventually lead to a detachment of the retina.[17] This is aided by the fact that the posterior border layer of the vitreous is more firmly attached to the membrana limitans interna retinae than the outer surface of the retina is to the pigment epithelium of the choroid.

John M. McLean,[18] of the Wilmer Institute of Johns Hopkins, recently compiled a statistical study of 255 cases of retinal detachment, which included 14 aphakics. Nine of these cases followed extracapsular extractions, 4 after intracapsular, and one after a discission and lavage. It has been the common belief that retinal detachments are more frequently found after intercapsular than after extracapsular cataract extractions. The above statistics disprove such a contention.

In order for the surgeon to appreciate the finer details in the mechanics of the intracapsular cataract extraction, it is of the utmost importance that he acquaint himself with the intimately gross and microscopic anatomy of the anterior segment of the eyeball. To obtain a clear understanding of the suspensory ligament (a structure of great importance in intracapsular work), one must study this intricate system by means of serial microscopic sections. It is not possible to examine one sagittal section and think that mastery of the complete zonule of Zinn has been acquired. The impressions so derived are absolutely incomplete. The gross dissections on the anterior segment of the eye confirm beyond a doubt many of the microscopic concepts relating to the suspensory ligament.

The following enumeration of anatomic concepts should be borne in mind by those who perform the intracapsular extraction, since knowledge of them is important in understanding the internal dynamics of the procedure:

1. The zonular fibers arise in their entirety from the complete surface of the orbiculus ciliaris. There are no spaces found between the ciliary epi-

RESISTANCE TO CURE IN PSYCHOTHERAPY*

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IN MANY patients the revelation of the mechanism of their neurosis as it expresses itself in the developing relationship with the physician suffices to set into operation forces that eventually lead to insight and to a reorientation with the world. Unfortunately, however, there are some patients who seem incapable of bridging the gap that separates them from normality. Instead of getting well they remain ill, clinging to their neurotic symptoms with a desperation that is confounding both to the physician and to themselves. One may be tempted to ascribe this behavior to stupidity or cantankerousness. However, a deeper investigation discloses that resistance to cure develops despite the patient's better judgment and that it exists in one form or another in every person who undergoes treatment. Unless it is handled properly, this resistance is apt to block progress and may even cause the patient to interrupt his therapy prematurely.

There are two opposing dynamic forces at work in the psyche of the neurotic person. One group constitutes basic biologic and social strivings, such as those for security, companionship, love, assertiveness, and creative self-fulfillment. There are more subversive strivings, too, in the form of irrational wishes, fears, and resentments. These strivings because of unfortunate conditions are so terror-inspiring and so repulsive that they can scarcely be acknowledged, let alone expressed, and it is the function of the second group of forces to oppose and to prevent their fulfillment.

In most neurotic conditions an equilibrium is maintained between the repressed and the repressing forces. The equilibrium is a shaky one, shifting constantly between the two opposing camps. When the integrity of the individual is threatened by forbidden impulses and demands, the defensive forces of the ego organize measures of counterattack in the form of drives and symptoms that constitute the various neurotic syndromes. As a result, the neurotic machine, complicated as it is with balances and counterbalances, never functions efficiently, and the slightest deviation may serve to throw it out of gear.

Psychotherapy, by providing insight into one's motives and behavior, constantly jeopardizes the delicate balance between the defenses and the repressed strivings and is unconsciously interpreted by the patient as a threat to his security. Destructive as they are, neurotic symptoms protect the individual from catastrophic helplessness and anxiety. To yield them promises exposure to dangers far greater than the inconveniences that the patient already suffers.

Furthermore, the ego gains through neurotic illness certain advantages of a positive nature, and resistance to cure is often based upon the fear of abandoning these secondary gains. A neurosis forces on the individual a distortion in his sense of values, and his neurotic drives become invested with subjective pleasures that make the ordinary pursuits of life mediocre and meaningless. Instead of seeking those goals accepted as normal by average people, the neurotic will engage himself in a frenzied search for vicarious satisfactions, such as for power, compulsive dependency, perfectionism, and detachment. These inevitably involve him in difficulties with people, for they make exorbitant demands on himself and others. The penalties he pays in the form of suffering are usually dissociated from his neurosis, and rarely does he consider his anxiety, tension, and hostility in any way related to his attitudes and objectives. Indeed, what he seems to seek in treatment is a formula whereby he can retain his neurotic trends without paying the price of suffering.

During treatment, consequently, the patient will feel that his secret hopes and expectations are under attack. He will sense danger and almost intuitively he will retreat or rebel. In spite of his better judgment he will throw up smoke screens and camouflages to confuse the physician and to block his own progress. These reactions constitute resistances to change, and their exact form will depend to a large degree on the kind of defenses he customarily uses to avert danger. He may feel helpless or hopeless or hostile. He may get discouraged, inhibited, fatigued, or listless. He may succumb to irritability or to contempt for the physician. He may develop feelings of being misunderstood. He may become forgetful and fail to show up for his appointments. He may become depressed and complain incessantly about his health, presenting a vast assortment of physical symptoms. He may express suspicions regarding the physician's intentions or training or political convictions as a possible justification for halting

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* This is the third of three papers on psychotherapy by Dr. Wolberg. The first two appeared in the July 1 and August 1 issues.—*Editor*

path of origin from the entire surface of the orbiculus ciliaris.

12. The older anatomists believed that the hyaloid membrane split into two layers in the ciliary region, one layer continuing over the anterior face of the vitreous and the other forming the suspensory ligament of the lens. This theory was discarded many years ago, even before the advent of the slit lamp. Observations through the corneal microscope prove conclusively that the above theory is wrong.

13. The accommodative theory of Helmholtz is strongly upheld by the anatomic arrangement of the zonular fibers.[20]

14. The zonular bundles ruptured close to their lenticular insertion in the majority of the experiments. This was clearly seen when a dye had been injected into Hannover's canal and transillumination was empl_yed during the extractions.

Summary and Conclusions

Slit lamp descriptions were given of the following anatomic structures:

1. The anterior, posterior, and lateral surfaces of the suspensory ligament.

2. Relationship of the zonular bundles to the ciliary processes.

3. Relationship of the posterior zonular membrane and posterior lens capsule to the hyaloid membrane.

4. Attachment of the zonular bundles to the lens.

5. The vitreous, with special emphasis on the anterior border layer (hyaloid membrane).

These experiments are the first of their kind to be performed on human eyes.

The detailed description of the four previous sections (A, B, C, and D), combined into one picture, gives a fairly good conception of the general internal dynamics of an intracapsular extraction and its effects on the structures in the anterior segment of an eye.

The amount of trauma sustained by these structures was almost negligible. This was observed through the corneal microscope during the extraction and verified by a microscopic analysis on two human adult eyes (serially cut) which had undergone intracapsular cataract extraction. The ciliary epithelium throughout remained perfectly intact, and no tears in the hyaloid membrane were noted.

Fourteen important anatomic concepts pertaining to intracapsular extraction are enumerated.

These original studies establish a true scientific approach for continued experimentation in the field of intracapsular cataract extraction. They also provide a working basis for future instruction to surgeons interested in this phase of cataract surgery.

And, above all, they give one a comprehensive understanding of the anatomic structures in the anterior segment of the eye. The demonstration of the detailed macroscopic and microscopic anatomy, plus the above experimental observations, convinces one beyond doubt that the intracapsular cataract extraction can be undertaken in a majority of cases with a subminimal amount of trauma.

A keener understanding of the essential features in the internal dynamics together with a sound anatomic knowledge would permit a more intelligent approach to the intracapsular cataract extraction.

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NEW PUBLICATION ON EYE HEALTH AND SAFETY

The National Society for the Prevention of Blindness is now publishing a bimonthly newsletter, entitled *Eye Health and Safety News*, for free distribution among physicians, nurses, public health officials, social workers, educators, safety engineers, and others who are professionally interested in some aspect of sight conservation.

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connections, and to present a rigid and logical system of what must have happened to them.

A device that is apt to be confusing to the physician is the use of insight as a form of resistance. Here the patient will routinely go through a detailed accounting of how well he understands himself, using the best accepted terminology, presenting the dynamics and mechanisms of his disorder in approved textbook style. To all appearances he has gained complete insight into the origin of his drives, into his compulsive trends and distorted relationships, into the consequences and destructive influences of his neurosis. Yet in his daily experiences he goes right on with his usual neurotic modes of adjustment and manifests the same symptoms that originally brought him to treatment. It is probable in such cases that the patient's insight is a highly intellectualized affair that he uses to confuse himself and the physician.

There are many reasons why he utilizes insight as a smoke screen behind which he can indulge his customary neurotic trends. One of the most common reasons is a desire to escape criticism and detection. Here a dissociation exists between how the patient thinks and how he feels, and it is often easy for the physician to minimize the seriousness of the patient's disorder when confronted during treatment with so beautiful a recitation of psychopathology. Behind the camouflage of insight it is apparent that the patient utilizes his knowledge of mechanisms as an instrument to allay his guilt and to forestall criticism in regard to his daily actions by himself pointing out the abnormal nature of and the apparent reasons for the things he does.

Another mechanism is found in the compulsively dependent patient who has magical expectations of what treatment will do for him. The chief motivation for his coming to treatment is the feeling that the physician is a godlike individual who will eventually enable him to gain those neurotic objectives that he, himself, has failed to obtain through his own efforts. Compliance here is the keynote, and the patient, by reciting his spurious insights, will feel that the doctor must reward his aptitudes in learning with anticipated bounties. This façade is completely unconscious, and the patient may really believe that he understands himself thoroughly. The clue to what is going on is usually furnished by the tremendous hostility and aggression that eventually is exhibited toward the physician when, after months of precise and punctilious performances, the patient does not magically get what he originally set out to achieve.

Other patients seem to be able to grasp genuinely the dynamic significance of the relationship they develop with the physician, yet they fail to make progress in the conquest of their neurosis. Here one often finds that the person is utilizing the treatment hour as a special event dissociated from life. Regarding it as such, he will go into mechanisms of his relationships with complete freedom, but it is obvious that with the physician he is operating under a set of standards entirely different from those that he uses with people in general. There seems to be something recondite about the treatment, for it is set apart from all other experiences. The special resistance here is that of seeing how the material that is uncovered in the treatment hour relates to everyday life. This isolation of treatment from life is often rationalized by the patient to himself on the basis that the physician is a scientist who does not condemn him for acts that would involve dangers on the outside. In this way he will lead a dual life and seemingly will be unable to fill the chasm between what happens in treatment and his experiences outside of treatment.

A form of resistance that is frequently overlooked is one that involves positive pleasures that the patient gets out of the treatment itself. He may get so many satisfactions in the present that future gratifications will seem dubious, and he may refuse to give up his neurosis because of a desire to continue to see the physician. This is frequently the case in a very dependent patient who looks forward to the hour to get a "lift," who perhaps pays lip homage to all the dynamic principles enucleated during treatment, but whose chief motive for treatment is to get suggestions and courage to carry on with his daily routines. Unless the physician watches himself carefully he will fall into a trap laid out for him by the patient, and he may be goaded by the patient's helplessness and apparent inability to do things for himself into loading him up with advice and admonishments which the patient absorbs as if these were pronouncements from the Deity himself.

Resistance to change may burn up the entire energy of the patient, and he may concentrate solely on fighting the physician, or defending himself, or proving the physician to be wrong, or winning him over with gestures of helplessness, praise, or love, or on seeking various means to escape or to evade treatment. The struggle is an intense one and usually goes on below the level of awareness.

When one appreciates the dynamic purpose of resistance one realizes that patience is a great virtue. The physician must bear with the neurotic individual as he progresses and as he takes refuge over and over again in his customary defenses. Resistance is yielded only after a great struggle, for change is a painful affair. The

therapy. He may even try to disarm the physician with strong professions of praise or devotion.

One of the earliest symptoms of resistance to cure is a re-enforcement of those neurotic devices that had previously kept the individual free from anxiety. Something to anticipate, therefore, is an apparent exacerbation of neurotic symptoms, and often patients go through a period of acute disturbance which may lead relatives or themselves to discontinue treatment. An explanation that the patient may possibly get worse before he gets better is often a safeguard against interruption of therapy.

An insidious type of resistance is that of self-devaluation. Here the patient refuses to concede that there is anything about him of an estimable nature or that he has any possibility whatever of standing on his own feet. To every interpretation he responds with the allegation that he is lost, that there is no need for him to continue, that he is hopeless, that it is too late in life to expect a change for the better. The inner image of himself is often that of a hideous, contemptible person, and any attempt to show him that this is a distorted picture usually serves to throw him into a panic inasmuch as his self-contempt is used as a bulwark to progress in therapy. There may be, in addition, a deep wish to be cared for like a child by rendering himself helpless, and the desire to depreciate himself may be in the nature of escaping criticism by anticipatory self-punishment. At other times a masochistic indulgence is a cover for a fear that if one acknowledges himself to be an able person, active and independent efforts will be expected of him. Such patients will hang on to their self-contempt with a determination that is astonishing, and only a painstaking analysis can lead them out of their morass.

Another form of resistance is forced flight into health. Here the individual tries to convince himself and the physician that he is absolutely well and that he no longer needs treatment. Any implication that he is not making a good adjustment to life is resisted with great vigor. Actually the patient may conduct his affairs of life with a semblance of normality in that he appears to be confident, self-reliant, and normally assertive. Yet the trained observer may detect in this a false note and often can observe that the person has to make a tremendous effort to maintain his illusion of health. This form of resistance is usually associated with the need to maintain a rigid control of everything one says for fear he will lose himself.

The urge to ward off the physician may result in an inability to think, to talk, or to feel. The patient, if he yields to this urge, will insist that there is absolutely nothing on his mind, and he will exhibit a singular sterility in his free associations and in his ability to think constructively about his problems. Very frequently this negativistic resistant state develops several weeks or several months after the patient appears to have entered into the spirit of treatment, spontaneously analyzing his difficulties and making what appears to be good progress. Suddenly, without warning, he will go into a blocked inhibited state. In many cases it becomes apparent that the patient, while sociable on the surface, is really detached underneath, functioning comfortably only so long as he can maintain a certain distance from people. During treatment he is apt to experience, perhaps for the first time, a real feeling of closeness to a person, the physician. Panic may force him to block, and he may exhibit an inhibition of speech, thinking, or emotion. Beneath his inhibitions may reside great rage at the physician for penetrating his defenses. His inability to express himself may represent a desire to smother his hostility.

Along with his unwillingness to verbalize ideas and impulses, the patient may indulge in irrational acts and behavior in his everyday life. This "acting out" appears to be a compensation for his inability to talk during treatment. The acts serve to drain off anxiety and leave little energy available for ideational processes during the treatment hour.

Another form of resistance is a veering around one's problems in superficial talk. Here words and talk are used as a defense to ward off basic issues. The patient may spend the entire time of treatment in discursive rambling that embraces topics of the day, current events, or past experiences of personal tragedy and martyrdom. There is little of deep significance in his conversation, and, if he is allowed to, the patient may continue for years to discuss material that is interesting enough but that actually has little to do with his deeper problems. Often he will want to monopolize the situation, and he will resent the physician's getting a comment or an interpretation in edgewise. Rarely will he talk about his attitudes toward the physician, who may begin to feel that he is merely an audience for the patient's boasts and diatribes. It is almost as if in superfluous conversation the patient defies the world to make him talk about his innermost self. There are some persons who utilize this defense in a more insidious manner—namely, by digging deeply into their infantile experiences and previous life. Here they will deluge the physician with their past and will fail utterly to apply any of the formulations to the present.

Associated with this there is an attempt to intellectualize their problems, to figure out

Case Report

CONTRAST CARDIOVASCULAR STUDY OF A PATIENT WITH RHEUMATIC MITRAL VALVULAR DISEASE AND DEXTROCARDIA WITH COMPLETE SITUS INVERSUS

ALEXANDER G. SILBERSTEIN, Capt. (MC), A.U.S., and ISRAEL STEINBERG, Lt. Comdr., MC-V (S), USNR*

THIS case is reported because of the rarity of rheumatic mitral valvular disease in patients with dextrocardia and complete situs inversus, and because the clinical diagnosis in this case was confirmed by cardiovascular visualization studies.

The incidence of dextrocardia with situs inversus was 1.1 per cent in Maude Abbott's series of 1,000 cases of congenital heart disease examined postmortem, and none of these had rheumatic mitral valvular disease.[1] We were able to find only 2 case reports of mitral valvular disease in patients with dextrocardia, and only one of these had situs inversus. Owen[2] reported a case of a woman who presented the findings of complete situs inversus with classical physical signs of mitral stenosis and insufficiency. The electrocardiogram was pathognomonic of dextrocardia; in addition, the appearance of the P waves was consistent with the diagnosis of mitral stenosis. This patient had never suffered from cardiac insufficiency and was fully compensated at the time of the report. Krestin's case,[3] that of a 30-year-old underdeveloped woman, had a dextrocardia without situs inversus. This patient had received digitalis previously because of chronic cardiac insufficiency of ten years' duration, and had the cardiac rhythm of auricular fibrillation. The electrocardiographic findings, therefore, were not typical of dextrocardia. No precordial apical thrill was present, but there were systolic and diastolic murmurs at the apex, and an accentuated second sound in the right second intercostal space at the lateral margin of the sternum.

Case Report

M. S., a 33-year-old white unmarried woman, was admitted to the wards of the First Medical Division of Bellevue Hospital, March 3, 1939. The chief complaint was of migratory pains in the back and both lower extremities of ten days' duration. Low-grade fever and pain on motion of the left knee had necessitated bed rest for three days before admission. At 13 years of age the patient had suffered from pain in the right shoulder which lasted for several weeks but with no associated high fever. She had not had scarlatina or frequent upper respiratory infections. Her father had died at 71 years, of general arteriosclerosis; her mother at 61 years, of Bright's disease. One sibling was a mental defective. The patient had had vaginal bleeding once at the age of 19 but none since in spite of estrogenic hormone and thyroid therapy. For as long as she could remember she had been of small stature.

From the First Medical Division of Bellevue Hospital, Dr. I. Ogden Woodruff, Director, and the Department of Public Health and Preventive Medicine of Cornell University Medical College.

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Physical examination on admission revealed a small white woman of immature habitus and childish psyche, alert, cooperative, and not acutely ill. Her temperature was 100 F., rectally, the pulse rate 88 per minute, the blood pressure 130 mm. systolic and 80 mm. diastolic. Her height was 55¼ inches (140.34 cm.), her weight 117 pounds (53.2 kilograms). The skull appeared normal in size and shape. The pupils were equal, regular, and reacted normally to light and accommodation. The optic fundi and visual fields were normal. The teeth were small. The tonsils had been removed. The breasts were underdeveloped. The lungs were resonant, the breath sounds normal, and no adventitious sounds were present. The point of maximum impulse of the heart was in the right anterior axillary line in the fifth intercostal space. The first heart sound at the apex was roughened and accentuated; the second sound in the right second intercostal space was accentuated and reduplicated. A presystolic thrill was felt at the apex, and a presystolic rumble and blowing systolic murmur were heard in this area; a systolic murmur was present at the base. The rhythm was regular, the rate 88 beats per minute. No abdominal viscera were felt but the area of liver dullness was percussed down to the left inferior costal margin in the midclavicular line. There was no axillary or pubic hair. The external genitalia were small, the vaginal introitus admitted one finger, the cervix was infantile, and the fundus of the uterus could not be felt. The hands were square, with stubby digits. There was moderate webbing of the toes. The left knee was moderately swollen, tender, but not red, and there was some limitation of flexion and extension.

The clinical impression was rheumatic fever with mitral stenosis and insufficiency, dextrocardia, situs inversus of the viscera, and dwarfism.

Laboratory findings were as follows: the red blood count was 4.2 million, the hemoglobin 13 Gm. per cent (Sahli), the white blood cells 6,600, with a normal differential count. The erythrocytic sedimentation rate (Ernstene) was 36 mm. in one hour. The fasting blood sugar was 89 mg. per cent. The blood Wassermann reaction was negative. Urinalysis was normal. Electrocardiographic tracings made three days after admission revealed regular sinus rhythm, auricular and ventricular rates of 82 per minute, P-R interval of 0.16 second, and QRS duration of 0.08 second. The inversion of all waves in lead 1, and the interchange of leads 2 and 3 were typical of dextrocardia with situs inversus (Fig. 1A). In addition, the notched and widened P waves were consistent with the clinical diagnosis of mitral stenosis. Tracings were later made with the arm electrodes reversed; the only abnormality then present was in the notched and widened P waves (Fig. 1B).

Teleoroentgenogram of the heart (Fig. 2) revealed dextrocardia with moderate enlargement in all diameters. The measurements were as follows:

patient's defensive structure, neurotic as it is, serves a vitally important function for him, and he will hold onto it to the bitter end like a drowning man clinging to a raft. Change is never immediate. Indeed where change occurs too rapidly one's suspicions are justified.

In the handling of resistance, the physician must interpret the defensive reactions as they occur along with the various façades that the patient elaborates to block himself. It is essential to strive for a gradual rather than a sudden yielding of resistance. A too sudden removal of the patient's defenses may produce severe anxiety and cause a retrenchment into neurosis and a prolonged impairment of progress. This occurs where there is a premature attack on deeper problems before the ego has gained sufficient strength to deal with them. As the patient's difficulties are slowly brought into the light and become more and more clear, he will react over and over again with resistance to change. The ego will not relinquish a lifetime of defenses merely because of one interpretation. It is the constant interpretation of resistances and the emerging insight into how one's conflicts work in various settings of life that make for real progress. Defense mechanisms because of prolonged conditionings are dissipated only when they no longer serve the function of protecting the individual against anxiety or of securing in a vicarious manner gratifications that are substitutes for biologic needs.

Summary

During psychotherapy the interpretation of the defensive mechanisms of the patient leads him gradually to an understanding of his neurotic trends and to a discovery of what vicarious satisfactions he gains from them. In this way he becomes better acquainted with the content of his unconscious fears and he gradually learns that he is able to master the anxiety that has made his defenses necessary.

Because neurotic trends serve a protective function and yield powerful satisfactions in the form of secondary gains, the individual is apt to fight treatment desperately. Inevitably he interprets therapy as an attack on his particular philosophy of life and as an assault on his secret wishes and expectations. To protect himself he will strive to hinder his progress in many insidious ways, such as by fatigue, listlessness, inhibitions of thinking, memory, and speech, resentment, suspiciousness, aggression, self-devaluation, forced flight into health, spurious insight, indulgence in superficial talk and in attempts to disarm the physician with praise or devotion.

It is necessary to bring the resistances to the attention of the patient and to show him how they protect him against the threat of change. Patience is a great virtue and the physician must bear with the neurotic individual as the latter struggles to abandon a neurotic structure that seems so vital to his integrity. One must suspect rapid change, for the person is able to master his anxiety only gradually. The physician must remember that he is not alone in his attack on the patient's resistances and that he has a powerful ally in the spontaneous urge that every individual has for growth and development and for the expression of basic wishes and needs. Resistance to change is yielded only when the ego develops sufficient strength to master unconscious fears and is able to express vital biologic and social needs without fear of injury or destruction.

MILITARY SURGEONS TO MEET

The Association of Military Surgeons of the United States will hold its fifty-first annual convention in Philadelphia at the Bellevue-Stratford Hotel, October 21 to 23, inclusive, according to an announcement by association officers.

The three-day convention will assemble doctors from all the current war fronts where United States forces are fighting, and from the great base hospitals where rehabilitation of the wounded is in progress. They will bring with them information on the latest technics of wartime medicine and surgery. Numerous forum lectures, practical demonstrations, moving pictures, and teaching panels are planned to present the wealth of data to the convention.

Honorary chairman of the convention this year is Rear Admiral Ross T. McIntire, Surgeon General of the Navy. The general chairman is Captain Joseph A. Biello, Medical Corps, USN, who is District Medical Officer of the Fourth Naval District.

The vice-chairmen are Brigadier General George F. Lull, USA, of Washington, D.C., and Commander E. L. Bortz, Medical Corps, USNR, of Philadelphia. Members of the executive committee for the convention include Captain R. H. Laning, Medical Corps, USN; Dr. Stanley P. Reimann, Dr. Gilson Colby Engle, Commander J. L. Tinney, USNR, and Dr. A. Newton Richards.

Case Report

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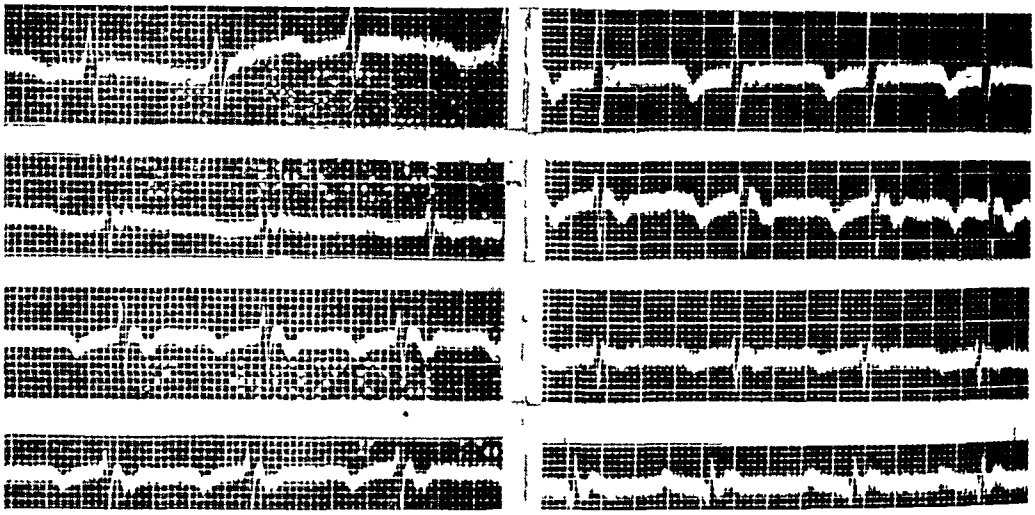
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* This paper was written before the authors enlisted in the service.



A B

FIG. 1. A—Electrocardiographic tracings of leads 1, 2, 3, and CF4. Note inversion of all waves in lead 1, characteristic of complete situs inversus. P waves are widened and split. B—Same leads but with arm electrodes reversed. The only abnormality now is in the P waves.

maximum transverse diameter, 13.6 cm.; total length, 14.5 cm.; width of pulmonic fields, 22.5 cm. Fluoroscopy revealed moderate enlargement of the left ventricle and slight displacement of the esophagus posteriorly and to the left, suggesting left auricular enlargement. Gastrointestinal series showed complete situs inversus of the abdominal viscera. X-ray films of the long bones and skull revealed no abnormality. The basal metabolic rate, determined after the patient had been afebrile, was −9.

After three days of bed rest and salicylates, the patient's temperature, which had ranged between 100 F. and 101 F., dropped to normal and remained so for the duration of the period of hospitalization. On the twelfth day there was transient right shoulder

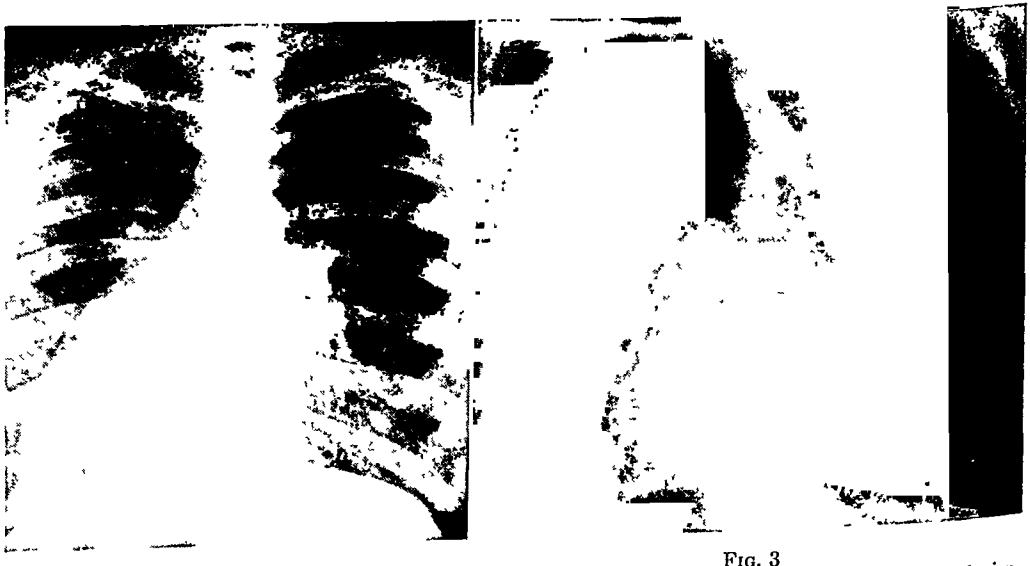


FIG. 2 FIG. 3

FIG. 2. Dextrocardia and mitral valvular heart disease—conventional teleoroentgenogram, frontal view. Note the classical enlargement and configuration of heart shadow.

FIG. 3. Contrast roentgenogram, frontal view. Right side of heart opacified. Note large pulmonary sinus (not forming part of cardiac border) and enlarged pulmonary artery and branches.



FIG. 4

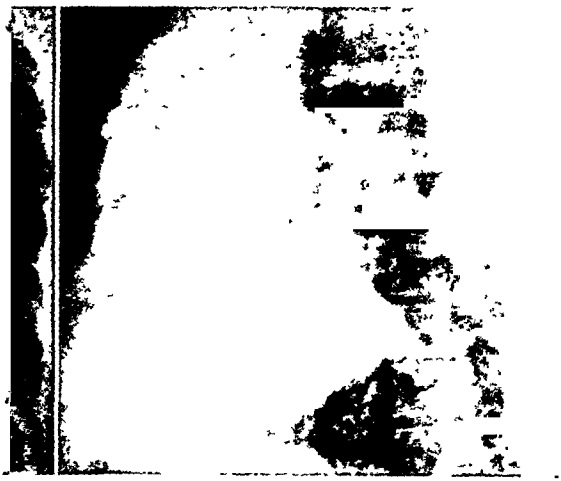
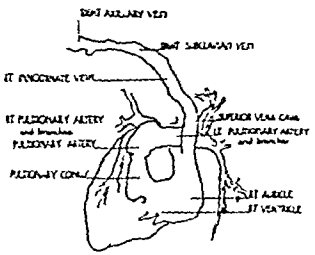


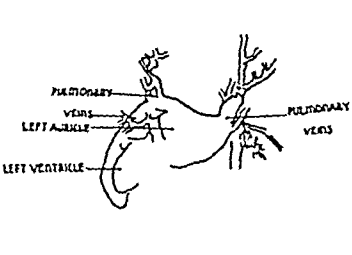
FIG. 5

FIG. 4. Contrast roentgenogram, frontal view. Left side of heart filled. Note prominent pulmonary veins and enlarged left auricle.

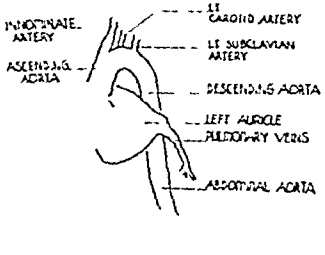
FIG. 5. Contrast roentgenogram, right oblique view. Left side of heart opacified. Note characteristic enlargement of pulmonary veins and left auricle.



3A



4A



5A

FIGS. 3A, 4A, and 5A are tracings of Figs. 3, 4, and 5, respectively.

pain. The sedimentation rate, having fluctuated between 36 mm. and 62 mm., remained normal after the twenty-ninth day. On the thirty-ninth day, the patient was discharged from the hospital, the final diagnosis remaining the same as that on admission.

The patient has been followed in the First Medical Division Cardiac Clinic for the past three years since her discharge from the hospital. During this period she has had only one episode of joint pains: this was unaccompanied by fever or elevation of the sedimentation rate. The heart was remained fully compensated, with no change in the physical signs previously observed. Recently, cardiovascular visualization,[4,5,6] was performed and the typical findings of mitral stenosis and insufficiency were revealed (Figs. 2, 3, 3A, 4, 4A, 5, 5A).

Summary

1. A case of rheumatic mitral valvular disease in a patient with dextrocardia and complete situs inversus has been presented.

2. Contrast cardiovascular visualization has conclusively established the presence of the mitral valvular disease by direct demonstration of the enlarged auricle, engorged pulmonary veins, and the enlarged pulmonary artery and its branches.

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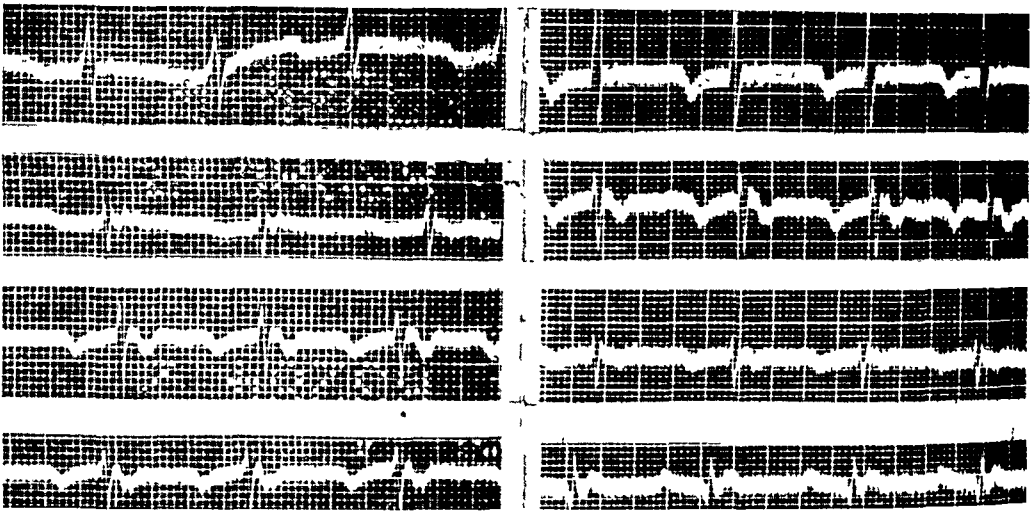
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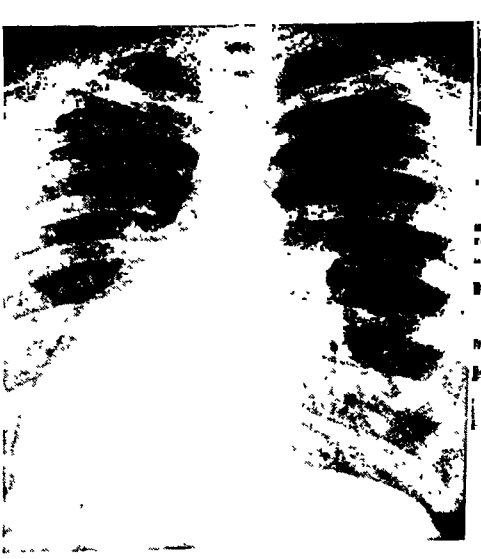


FIG. 2



FIG. 3

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reported on in the *J.A.M.A.*[4] in 1929; in 1930 others reported additional cases of Tricho burns, and in 1934 I reported the serious consequences with the formation of sarcoma.

The case herewith described is one of definite malignant degeneration of the skin of the cheek appearing fifteen years after Tricho treatment for removal of superfluous hair.

Case Report

L. S., a woman aged 46, single, a secretary, was referred to me for treatment on July 3, 1942, for an indurated granular raised ulceration on the left cheek. The lesion had begun as a small ulceration in May, 1942. It did not heal with local treatment and was desiccated by the physician. The ulceration recurred and grew larger. Repeated desiccation, followed by superficial x-ray therapy, failed to halt the lesion's growth. A biopsy at this time showed definite squamous cell epithelioma with definite pearl formation.

The patient stated that in 1927 she had taken a course of Tricho treatments on both cheeks and that following treatment the hair on her face fell out and the skin became white and "parchment-like."

Upon examination on July 3, 1942, the right-cheek skin was white, leathery to the touch, and surrounded by a border of moderate telangiectasia. The left cheek was somewhat swollen. In the lower portion (Fig. 1) near the angle of the mouth, there was a large irregular ulcer, with raised granular edges. The center was covered with a dry, scaly scab; the edges and surrounding tissue were indurated. The ulcer was 7/8 of an inch in diameter and was raised 1/8 of an inch above the skin surface. The hard induration extended 1/2 inch around the lesion, and the skin of the rest of the cheek was firm and leathery. There was pitting and marked telangiectasia over the whole cheek and chin and extending down to the neck. Examination within the mouth revealed no buccal mucosa involvement. There was no palpable adenopathy. Radium treatment was advised and was applied on July 7, 1942, by means of a wax mold containing 70 mg. of radium filtered through 1½ mm. platinum. A dose of 3,500 mg. hours was administered. The lesion responded well to treatment; and by September, 1942, it was completely healed (Fig. 2), only a slight dimpling of the skin marking the area that was treated. The surrounding skin and that of the cheek is somewhat softer, but the scarring of the previous Tricho treatment remains. The patient was recently seen (August, 1943), and the condition remains healed.

Conclusions

Radiation therapy when too often repeated and improperly employed may cause untoward damage to the skin. Such destructive changes may occur even after several years have elapsed. Malignant changes may occur, especially in overirradiated tissue.

X-ray therapy for cosmetic epilation of superfluous hair is fraught with danger and should not be used.

In the case reported, epithelioma occurred fifteen years after excessive repeated doses of unfiltered x-rays had been administered by the Tricho system for removal of superfluous hair on the face.

755 Park Avenue
New York City

References

1. Müller, R.: Strahlentherapie 53: 261 (June 29) 1935.
2. Kaplan, I. I.: J.A.M.A. 102: (Feb. 24) 1934.
3. Tod, M. C.: Lancet 2: 701 (Sept. 19); *ibid.* 2: 755 (Sept. 26) 1936.
4. J.A.M.A. 92: 252 (Jan. 9) 1929.

THE FUTURE OF THE BIRTH RATE

Louis I. Dublin, Ph.D., chief statistician and third vice-president, Metropolitan Life Insurance Company, said:

"Nothing has happened to materially change my view previously expressed that the population of the United States will reach a maximum of approximately 150 million people by 1980 and will presumably remain at about that level for sometime thereafter. The present chaotic state of the world does not help forecasting; but the attitude of the American people toward family life is sufficiently crystallized to bring about this result. It would be necessary, however, for American families to aim in general at having not less than three children. This average number of three per family, rather than two, is needed to make good the deficiency caused by the premature death of children and the sterility of a sizable number of American couples. To achieve this general average will, in all probability, call for an increasing number of children in the families living in cities and towns because at the present time the nation is largely depending for its maintenance on the high reproductivity of the population living in the rural areas. We cannot continue to rely on the farmers of the country to produce a surplus of children as birth control practices are spreading rapidly among them also.—*Briefs*

TUBERCULOSIS A POSTWAR PROBLEM

In some of the European countries pneumonia is a chief cause of death. If it can be treated early with one of the sulfa drugs, the mortality can be reduced probably by 50 to 75 per cent.

The second major cause of death is tuberculosis, and all age groups of the population will be affected. Under the conditions of war and military occupation, the prevalence of the disease is undoubtedly increasing, and it will be one of the principal problems of the reconstruction period, as it was after the last war. This time we should be better equipped to fight tuberculosis because we have learned that it is a community problem and can be better dealt with through a specialized program. In combating tuberculosis, the first problem will be to locate the cases. Persons with open lesions should be isolated and taught how to care for themselves so as to be of the least possible danger to those with whom they must come in contact. In locating cases, traveling diagnostic units, including x-ray equipment, will be essential. Locating the case is only the initial step; the big problem is to reduce contagion by removal, by home isolation, and by artificial pneumothorax. The public health nurse is an essential member of the public health personnel in the fight against tuberculosis.—M.E. TENNANT, R.N., *Amer. Jour. Nursing*

Case Report

EPITHELIOMA OF THE CHEEK DEVELOPING 15 YEARS AFTER TRICHO X-RAY TREATMENT FOR HAIR ON THE FACE

IRA I. KAPLAN, M.D., New York City

THE increasing use of x-ray for dermatologic conditions and epilatory purposes renders necessary a warning regarding latent untoward effects which may occur a long time after treatment that is carelessly given.

Müller[1] points out that although they were at first observed exclusively in people previously exposed to x-rays over a long period, x-ray carcinomas are now considerably in evidence as late aftereffects of therapeutic or even diagnostic application of x-rays that were used a long time before.

In 1934 I[2] reported on a case of sarcoma of the face which had developed eight years after the application of x-ray, by the Tricho method, for hirsuties facialis. I have recently seen another case in which the lesion, an epithelioma, developed fifteen years after Tricho treatment for hair on the face.

Because of its biologic property of epilation, x-ray is utilized for hair removal. When it is properly employed and applied within certain fixed limits, epilatory results may be produced without untoward harmful sequelae. When it is promiscuously employed, however, and especially when used for cosmetic reasons by those who are untrained and inexperienced, latent dangerous effects are apt to appear.

The epitheliomas from x-rays usually occur on a skin which shows more or less extensive atrophy, telangiectasia, and pigment changes. Tumor formation is usually preceded by an ulcer that temporarily heals but always recurs, with permanent ulceration and hyperkeratosis.

X-ray cancer, says Tod,[3] is the final tragic result of overexposure to the rays. Clinically as well as histologically, x-ray carcinomas are squamous cell epitheliomas with or without pearl formation, and they are often prone to attack the deeper layers. Their development is slow, and they show little tendency to metastasize.

Among the most notorious groups of cosmeticians who improperly employed irradiation for the removal of superfluous hair was the Tricho Company, which advertised hair removal by x-ray at moderate fees.

This concern had a large clientele, and not until its exposure by the American Medical Association were the dangers of this treatment clearly realized. The methods of the Tricho group were



Fig. 1 (left). Epithelioma of cheek developing fifteen years after Tricho x-ray treatment for hair on face. (July, 1942.)



Fig. 2 (right). Lesion completely healed after radium therapy. (September, 1942.)

Thirty-Seventh Annual Meetings

of the

District Branches

of the

Medical Society of the State of New York

SCHEDULE

*First**—Wednesday, October 6 or 13
Second—Wednesday, November 17, St. Albans Naval Hospital, L.I.
Third—Tuesday, September 21, Troy
Fourth—Thursday, September 23, Saratoga Springs, Newman's Lake House
Fifth—Wednesday, September 22, Syracuse
Sixth—Tuesday, September 28, Ithaca
Seventh—Thursday, September 30, Rochester
Eighth—Wednesday, September 29, Buffalo

PROGRAMS†

Fourth District Branch

Thursday, September 23, 1943

Newman's Lake House

Saratoga Springs, New York

Afternoon Session

2:00 P.M.—"Treatment of War Injuries"
Col. A. J. Canning, (M.C.) United States Army
Colonel Canning was on duty at Schofield Barracks at the time of the Pearl Harbor disaster.

"The Allergic Child"
Bret Ratner, M.D., Clinical Professor of Pediatrics, New York University College of Medicine; Director of Pediatrics, Sea View Hospital, and Attending Children's Medical Service, Bellevue Hospital, New York City; Author of "Allergy, Anaphylaxis and Immunotherapy"

"Clinical and Laboratory Studies of Burns with Special Reference to the Cocoanut Grove Fire"
Edward A. Cooney, M.D.
Stanley Levenson, M.D. } Boston
Drs. Cooney and Levenson have had a wealth of experience, both clinical and laboratory, in treating cases of burns and shock in this terrible holocaust. They bring photographs of their cases showing patients before and after treatment.

6:30 P.M.—Dinner
Address by Thomas A. McGoldrick, M.D., *President of the Medical Society of the State of New York*

"Alaskan Adventures"
G. Scott Towne, M.D., Saratoga Springs
Moving pictures taken by Dr. Towne on some of his big-game hunting expeditions in Alaska.

Ladies will be entertained by members of the Auxiliary and will join members of the District Branch for dinner.

Officers — Fourth District Branch

President.....Harold A. Peck, M.D., Glens Falls
First Vice-President.....Frank F. Finney, M.D., Malone
Second Vice-President.....Denver M. Vickers, M.D., Cambridge
Secretary.....F. Leslie Sullivan, M.D., Scotia
Treasurer..G. S. Pesquera, M.D., Mount McGregor

Presidents of Component County Societies

Clinton.....Sidney Mitchell, M.D., Plattsburg
Essex.....Samuel A. Volpert, M.D., Lake Placid
Franklin..Francis B. Trudeau, M.D., Saranac Lake
Fulton.....Arthur R. Wilsey, M.D., Gloversville
Montgomery.....Nicholas T. Lombardi, M.D., Amsterdam
St. Lawrence.....Frederick E. Clark, M.D., Ogdensburg
Saratoga.....Mark D. Duby, M.D., Schuylerville
Schenectady.....William F. Nealon, M.D., Schenectady
Warren.....Burke Diefendorf, M.D., Glens Falls
Washington..George M. Casey, M.D., Hudson Falls

* Location to be selected.

† Programs of the First and Second District Branch Meetings will appear in a later issue. Programs of the Third, Fifth, Sixth, and Seventh District Branches appeared in the September 1 issue.

Postgraduate Medical Education

Programs arranged by the Council Committee on Public Health and Education of the Medical Society of the State of New York are published in this section of the JOURNAL. *The members of the committee are Oliver W. H. Mitchell, M.D., Chairman (428 Greenwood Place, Syracuse); George Baehr, M.D.; and Charles D. Post, M.D.*

Cancer Teaching Day

A CANCER Teaching Day will be presented on Thursday, October 7, at the Homer Folks Tuberculosis Hospital in Oneonta, New York. The meetings will begin at 4:00 P.M., with opening remarks made by Mahlon C. Halleck, M.D., president of the Otsego County Medical Society. The program will include:

4:00 P.M. "The Care of the Incurable Cancer Case," by Norman Treves, M.D., Associate Surgeon, Memorial Hospital, New York City, and Consultant, neoplastic diseases, Meadowbrook Hospital, Hempstead, New York.
"Cancer of the Cervix," by Gray H. Twombly, M.D., Assistant Surgeon, Memorial Hospital, New York City, and Assistant Professor, Cancer Research, Columbia University.
"Cancer of the Larynx, Bronchi, and Esophagus," by Chevalier H. Jackson, M.D., Professor of Clinical Bronchoscopy and Esophagoscopy, Temple University School of Medicine and Hospital, Philadelphia.

6:15 P.M. Dinner, served at the Homer Folks Tuberculosis Hospital.

7:30 P.M. "Cancer of the Face and Lip," by Andrew H. Dowdy, M.D., Associate Professor of Radiology, University of Rochester School of Medicine and Dentistry, Rochester, New York.
"X-ray Aspects of Bronchogenic Carcinoma," by George N. Scatchard, M.D., Radiologist, Edward J. Meyer Memorial Hospital, Buffalo, and Assistant Professor of Radiology, University of Buffalo School of Medicine.

Frederick M. Johnson, M.D., chairman of the cancer committee of the Otsego County Medical Society, will preside at the evening meeting.

Reservations for the dinner must be made in advance and should be sent to Ralph Horton, M.D., Superintendent, Homer Folk Tuberculosis Hospital, Oneonta, New York.

The Teaching Day will be presented under the auspices of the Otsego County Medical Society, the Sixth District Branch of the Medical Society of the State of New York, the Tumor Clinic Association of the State of New York, the Medical Society of the State of New York, and the New York State Department of Health, Division of Cancer Control.

War Medicine and Surgery

A SINGLE lecture on "Traumatic Surgery with Emphasis on the Treatment of Wounds and Shock" was given before the Greene County Medical Society at 9:00 P.M. Friday, August 27, at the Memorial Hospital in Catskill, New York.

The speaker was Walter D. Ludlum, Jr., M.D., Associate in Traumatic Surgery, New York Post-Graduate Medical School, Columbia University.

The instruction was presented by the Medi Society of the State of New York and the N York State Department of Health.

"Hypertension"

POSTGRADUATE instruction in "Hypertension" has been arranged by Herman O. Mosenthal, M.D., clinical professor of medicine, College of Physicians and Surgeons, Columbia University, for the Onondaga County Medical Society and the Syracuse Academy of Medicine.

The two-hour session will begin at 7:30 P.M., Tuesday, October 19, at the Onondaga Sanat ium in Syracuse.

Dr. Mosenthal will speak on the subj "Classification—Medical Treatment," and J. W liam Hinton, M.D., associate clinical professor surgery at the College of Physicians and Surgeo will speak on "Surgical Treatment."

Foot Pain in Adults

A SINGLE lecture, arranged for the Delaware County Medical Society, was held on Tuesday, September 14 at 6:30 P.M., at the Hamden Inn, Hamden, New York.

The subject was "Pain in and Related to Ad Feet," and the speaker was Roscoe D. Severan M.D., associate professor of orthopaedic surgery Syracuse University College of Medicine.

Army doctors, to an American correspondent in Sicily, on the subject of blood plasma: "Write lots about it; go clear overboard for it; say that plasma is the outstanding medical discovery of this war."—*New York Times.*

A physician may possess the science of Harv and the art of Sydenham, and yet there may lacking in him those finer qualities of heart a head which count for so much in life.—SIR WILLI OSLER

SIXTEENTH GRADUATE FORTNIGHT

of the New York Academy of Medicine

October 11 to 22, 1943

Subject:

"DISORDERS OF THE DIGESTIVE TRACT"

Program Arranged by Committee on Medical Education

Evening Session—8:30 o'clock

October 11

ADDRESS OF WELCOME

Arthur F. Chace, *President*, New York Academy of Medicine

SCIENTIFIC PROGRAM

The Ludwig Kast Lecture: "The Physiology of the Gastrointestinal Tract," A. C. Ivy, Chicago

"Emotions and Gastric Function," Harold G. Wolff

October 12

"A Critical Review of Gastroscopy," Edward B. Benedict, Boston

"Diagnosis and Treatment of Benign and Malignant Lesions of the Stomach," Arthur W. Allen, Boston

October 13

"The Pathologic Physiology of Gastric and Duodenal Ulcer," Harry Shay, Philadelphia

"Recent Advances in the Therapy of Peptic Ulcer," Asher Winkelstein

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October 15

"Postcholecystectomy Syndrome and Its Treatment," Ralph Colp

"Recent Advances in the Surgery of the Pancreas," Allen O. Whipple

October 18

"Present Status of Regional Enteritis and Ulcerative Colitis," J. A. Bargen, Rochester, Minnesota

"The Sulfonamides in Gastrointestinal Diseases," Warfield M. Firor, Baltimore

October 19

"Amebiasis and the Flagellate Diarrheas," Thomas T. Mackie, Lt. Col., M.C., (A.U.S.)

"Problems of Immunity to Bacillary Dysentery," René J. Dubos, Boston

October 20

"The Management of Acute Intestinal Obstruction," W. Osler Abbott, Philadelphia

"Treatment of Diseases of the Esophagus," William L. Watson

October 21

"The Surgical Management of Certain Diseases of the Colon," Henry W. Cave

"Diseases of the Anus and Rectum," Harvey B. Stone, Baltimore

October 22

"Nutrition in Medicine," Fredrick J. Stare, Boston

The Wesley M. Carpenter Lecture: "Parenteral Fluids and Food in Gastrointestinal Diseases," Robert Elman, St. Louis

Concluding Remarks, F. Warner Bishop, *Chairman;* Committee on Graduate Fortnight

Morning Panel Discussions*

11:00–12:30 o'clock

CHARLES F. TENNEY, *Director*

October 12

Subject: Emotions and gastric function
Chairman: Harold G. Wolff

October 15

Subject: Diagnosis of gastrointestinal lesions by means of x-ray and gastroscopy
Chairman: Ross Golden

October 19

Subject: Use of sulfonamides in gastrointestinal diseases
Chairman: Walter A. Bastedo

October 22

Subject: The commoner diseases of the anus and rectum of interest in general practice
Chairman: Harvey B. Stone, Baltimore

Fellows of the Academy and registrants are invited to attend and participate in these panel discussions. It is requested that questions for discussion be submitted in advance of the conference to Dr. Mahlon Ashford, at the Academy, or if this is

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* The complete panel membership will be given in a subsequent announcement.

Eighth District Branch

Wednesday, September 29, 1943
Hotel Statler
Buffalo, New York

Morning Session

10:00 A.M.—"Industrial Dermatitis"
Joseph L. Morse, M.D., New York City
"Peptic Ulcer"
Burrill B. Crohn, M.D., New York City

12:30 P.M.—Luncheon
Address by Thomas A. McGoldrick, M.D., Brooklyn, *President of the Medical Society of the State of New York*

Afternoon Session

2:00 P.M.—Business Meeting—Election of Officers
"Medical and Hospitalization Plans"
Herbert H. Bauckus, M.D. } Buffalo
Carlton E. Wertz, M.D. }
(Five minutes each)
"Chronic Nephritis"
Herman O. Mosenthal, M.D., New York City, Clinical Professor of Medicine, New York Post-Graduate Medical School, Columbia University
"Important Points in Surgical Treatment of Breast Tumors"
Donald Guthrie, M.D., Robert Packer Hospital, Sayre, Pennsylvania

Ladies will join members of the District Branch for luncheon.

Officers—Eighth District Branch

President.....Robert C. Peale, M.D., Olean
First Vice-President.....Peter J. Di Natale, M.D., Batavia
Second Vice-President.....John C. Kinzly, M.D., North Tonawanda
Secretary.....
Treasurer.....William J. Orr, M.D., Buffalo

Presidents of Component County Societies

Allegany.....Hanford K. Hardy, M.D., Rushford
Cattaraugus..James A. Taggert, M.D., Salamanca
Chautauqua...C. Otto Lindbeck, M.D., Jamestown
Erie.....Harold F. R. Brown, M.D., Buffalo
Genesee.....Ward B. Manchester, M.D., Batavia
Niagara.....Forrest W. Barry, M.D., Lockport
Orleans.....John S. Roach, M.D., Medina
Wyoming..George A. McQuilkin, M.D., Varysburg

Prize Essays

The Merrit H. Cash Prize and the Lucien Howe Prize will be open for competition at the next Annual Meeting of the Medical Society of the State of New York.

The Lucien Howe Prize of $100 will be presented for the best original contribution on some branch of surgery, preferably ophthalmology. The author need not be a member of the Medical Society of the State of New York.

The Merrit H. Cash Prize of $100 will be given to the author of the best original essay on some medical or surgical subject. Competition is limited to the members of the Medical Society of the State of New York, who at the time of the competition are residents of New York State.

The following conditions must be observed:

Essays shall be typewritten or printed with the name of the Prize for which the essay is submitted, and the only means of identification of the author shall be a motto or other device. The essay shall be accompanied by a sealed envelope having on the outside the same motto or device and containing the name and address of the writer.

If the Committee considers that no essay or contribution is worthy of a prize, it will not be awarded.

Any essay that may win a prize automatically becomes the property of the Medical Society of the State of New York "to be published as it may direct."

All essays must be presented not later than February 1, 1944, and sent to the Chairman of the Committee on Prize Essays of the Medical Society of the State of New York, 292 Madison Avenue, New York 17, New York.

CHAS. GORDON HEYD, M.D., *Chairman*
Committee on Prize Essays

SIXTEENTH GRADUATE FORTNIGHT

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not feasible, they may be sent in writing to the Chairman during the discussion.

Afternoon Hospital Clinics*

2:00-5:00 o'clock

MAHLON ASHFORD, *Chairman*, Committee on Clinics

FIRST WEEK

October 11—Bellevue; *October 12*—Beth Israel, St. Vincent's; *October 13*—Montefiore, Babies; *October 14*—Kings County, Brooklyn, and Morrisania; *October 15*—Mount Sinai, Post-Graduate.

SECOND WEEK

October 18—Long Island College Hospital, Lenox Hill; *October 19*—Flower-Fifth Avenue, Harlem; *October 20*—Presbyterian, Jewish Hospital of Brooklyn; *October 21*—New York, Memorial; *October 22*—Polyclinic, Roosevelt.

* A detailed daily schedule will be mailed at a later date to Fellows and registrants.

Exhibits

ROBERT E. POUND, *Director*

Exhibits will demonstrate recent advances in the etiology, pathology, diagnosis, prophylaxis, and treatment of disorders of the digestive tract, and will consist of graphs, photographs, motion pictures, roentgenograms, and specimens. A complete catalogue will be published before the opening of the Fortnight. Application blanks will be sent on request to those who wish to present exhibits.

Fresh Pathology

HARRISON S. MARTLAND, *Director*

Special demonstrations of fresh pathology will be presented, as well as a special exhibit of pooled pathologic specimens. A daily schedule of demonstrations will be posted.

Books

A special exhibition of books illustrating the general subject will be held in the Library, on the third floor, and will be arranged by Dr. Burrill B. Crohn, with the assistance of the staff of the Library. A practitioner's bookshelf will also be displayed.

SECOND INDUSTRIAL MEDICINE COURSE SCHEDULED

To meet the continued wartime need for a general training course for physicians engaged in or desiring to enter industrial practice, the Long Island College of Medicine has announced its second intensive postgraduate course in industrial medicine to be given in Brooklyn during the first two weeks of November.

The course is modeled on the first series of lectures and seminars in this field presented by the College in November, 1942, in which 59 matriculants from six states enrolled. Enrollment this year will be limited to 50 matriculants for the full course. The course is designed for physicians, but a limited number of others will be permitted to attend the sessions as auditors.

The course will run from November 1 to November 12. It will consist of afternoon and evening lectures at the College and morning clinics in the medical departments of nearby industrial plants. The lectures will be given by leading industrial physicians and members of the College faculty. The course is under the auspices of the Department of Preventive Medicine and Community Health and is directed by Dr. Thomas D. Dublin, associate professor.

Following the completion of the course, additional supervised training in the medical departments of selected industrial concerns will be provided for those of the matriculants who desire further practical work.

Five of the matriculants enrolled in 1942 elected to take a month of supervised training, and 4 matriculants were aided by the College in finding industrial positions. Thirty-five of last year's matriculants were physicians, of whom 17 were in full-time industrial practice.

Assisting Dr. Dublin in the formulation and development of the course are Dr. Cassius H. Watson, medical director of American Telephone & Telegraph Co., alumnus and trustee of the College; Dr. John J. Wittmer, medical and personnel director of Consolidated Edison Co., an alumnus; and Alfred R. Crawford, of the College's Department of Administration.

Thirty-seven lecturers will take part in the sessions.

A series of clinical and laboratory demonstrations at the College is planned.

General topics of the lecture sessions, various phases of which will be discussed, include: "The Physician in Industry and His Field," "Planning an Industrial Medical Department," "Evaluating the Health Status of the Workers," "Occupational and Nonoccupational Incapacitation," "Community Factors in the Health of the Worker," "Industrial Accidents," "Protecting the Place of Work," "Surgical Management of Industrial Injuries," "Industrial Toxicology," "Special Wartime Problems in Industrial Medicine."

As was done last year, texts or outlines of each lecture will be distributed to matriculants following the session, and the complete transcript will be bound and made available at the conclusion of the course for purchase by physicians or others interested.

The printed announcement with all details and the registration forms will be available by September 15.

Physicians who desire further information or wish to apply should addresss the Office of Administration, 350 Henry Street, Brooklyn 2, New York.

Health News

New York Tuberculosis and Health Association Makes Annual Report

The Annual Report of the New York Tuberculosis and Health Association, published recently, states that during 1942 more than 10,000 persons received, through the Association's Personal Information Services, help with problems of convalescent care, employment and rehabilitation, x-ray examinations, pneumothorax, nursing care, rheumatic heart disease, and related problems.

A distinct change in the requests for help last year, according to the Annual Report, was the marked number of those seeking pay clinics, private physicians, and consultation services, rather than information regarding public clinics and free care.

In cooperation with the Medical Information Bureau of the New York Academy of Medicine, the New York Tuberculosis and Health Association arranged 238 radio broadcasts during 1942. One-fourth of these broadcasts, according to the Association's Annual Report, were devoted to tuberculosis prevention, while other subjects that were covered included the heart diseases, social hygiene, dental health, personal information, and early diagnosis.

Through the Association's Health Education Service, 2,978 individuals received assistance and advice as compared to 2,058 in 1941. This service varied from aid in planning and conducting health education programs to the mailing of health pamphlets and other literature. Leaflets mailed from the Manhattan headquarters alone totaled 105,200. The Association and the New York City Department of Health work jointly in Harlem, Washington Heights-Riverside, and Staten Island in promoting health education among the people through the District Health Centers.

The financial statement of the Association for the year 1942 reports the receipts of $228,397.01 from the annual sale of Christmas Seals in the territory of the Association, which is the Boroughs of Manhattan, the Bronx, and Richmond. The annual Seal Sale is the chief source of income to the Association and supports its program for the prevention of tuberculosis, social, heart, and dental diseases through health education. The officers of the Association are: Dr. J. Burns Amberson, president; Mr. Bailey B. Burritt, first vice-president; Dr. Edwin P. Maynard, Jr., second vice-president; Mr. Raymond Atkin, treasurer; and Mr. Daniel Paul Higgins, secretary.

Maternal and Infant Care for Wives of New Yorkers in Service

One thousand application blanks for free maternity and infant care for the wives of service men have just been sent out by the New York City Health Department, according to Health Commissioner Ernest L. Stebbins. "This means," said Commissioner Stebbins, "that the plan to help soldiers' and sailors' wives with medical and hospital care during their pregnancy and to provide care for their infants is in operation in New York City. The money for this service became available as of July 1 of this year." Wives of men serving in the fourth, fifth, sixth, and seventh paid grades of the Army, Navy, Marine Corps, and Coast Guard are eligible for this service.

The thousand application blanks and the instructions that have gone out to these women represent the accumulation of inquiries that came to the Health Department in the course of three months, during which time the details for the program were worked out with the Federal Government. "The approved plan provides for complete medical care for maternity patients (for deliveries occurring after July 1) during the prenatal period, childbirth, and six weeks thereafter, and postpartum examination at the end of six weeks plus care of the newborn infant," said Dr. Leona Baumgartner, director of the Bureau of Child Hygiene. "Children of the servicemen in the specified categories will receive health supervision in the sixty-three Health Department child health stations. The plan also provides for payment of private physicians and hospitals for the treatment of sick infants under one year of age."

Wives of servicemen in the specified categories can now obtain from the local Red Cross Chapter, the Army and Navy Relief Societies, the Maternity Center Association, Visiting Nurse Associations, the District Health Centers, or the main office of the Department of Health the two necessary application blanks. One is for medical care and the other for hospital care. A woman may have her private physician, but hospital care can be provided only in those hospitals that have been approved by the American College of Surgeons. A list of these may be obtained from any of the county medical societies or the New York City Health Department. A doctor receives $50 for caring for the woman during the prenatal period, at childbirth, and six weeks thereafter. Physicians will be reimbursed on a fee basis for the care of a sick infant.

Dr. Baumgartner emphasized that the wives of servicemen must be sure that the doctor or hospital will be able to verify their husbands' serial numbers. When applications are received at the Health Department they are checked, and if payment is authorized the doctor, the patient, and the hospital are notified. Hospitals will be reimbursed on a cost basis. In unusual cases consultants may be called in by the attending physician, and they will be reimbursed.

Many applicants are asking for further help in planning their maternity care. The Maternity Center Association at 654 Madison Avenue will arrange to give assistance to these applicants.

If any woman eligible for the maternity service is unable to obtain an application blank in her neighborhood, she should write to the Bureau of Child Hygiene, EMIC Plan, Department of Health, 125 Worth Street, New York 13, New York, and the necessary forms will be forwarded to her promptly.

England Adopts Sound Economic Policies in Tuberculosis Control

Appreciating that expenditures to stem the tide of tuberculosis among its people is a sound and lasting investment, the government of England has decided in spite of the tremendous economic and social impact of the war, to initiate a new and more vigorous campaign against tuberculosis throughout the country.

According to the *Bulletin of the National Tuberculosis Association* (June 1943, p. 103), this will be

made possible through two progressive measures: (1) the purchase of fifty x-ray machines for the production of miniature chest x-rays, and (2) provisions for special maintenance allowances and extra grants which will enable the families of tuberculosis patients to support themselves at more than a sustaining economic level by meeting the costs of the disease from public funds. To quote:

"The Minister of Health, Mr. Ernest Brown, today described how a new campaign against tuberculosis will be initiated throughout the country. For the first time in the history of British medicine, healthy men and women will be examined for the initial symptoms of the disease. This has been made possible through mass miniature radiography.....

"In about one year's time, there will be 50 of these new x-ray machines in use in Britain, of which 25 will be used by the Army and 25 by civilians....."

Chest x-rays will be made by these units in factories and in other places where large numbers of people can be assembled. It is intended that practically the entire population of England will ultimately receive the benefit of this service. Quoting further:

"In order to encourage all sufferers from tuberculosis to undergo immediate treatment—even when the disease so far has not caused the person concerned to feel unwell—the government has decided to provide special maintenance allowances and also extra grants towards meeting special commitments such as hire, purchase, high rents or rates, insurance premiums, school fees, etc....."

Apparently the British government has been brought to the realization that the economic factors commonly associated with tuberculosis are many times more important as determinants in bringing the disease under control than the strictly medical factors. The provision of government allowances to maintain adequate family living standards, particularly when the principal wage earner is undergoing treatment, is sound economy. There is abundant evidence that there is need for similar action in New York, as well as in other states in this country. While ordinarily an individual may be expected to assume responsibility for the relief of personal illness, it would be folly to expect the same individual to carry an equal burden in the prevention of the disease in the community. It is hoped that the time may soon come when the application of the "means test" for tuberculosis will be a matter of history.—*Robert E. Plunkett, M.D., in Health News*

Prevention of War Shock for Seamen

A medical education program under the joint auspices of the United Seamen's Service and the War Shipping Administration to help merchant seaman avoid war shock will be started under the direction of Dr. Florence Powdermaker, a psychiatrist, it was announced by Douglas P. Falconer, national executive director of the seamen's service.

The program will be supervised by the United States Public Health Service. Dr. Powdermaker, a practicing physician, is a member of the American Medical Association and an associate psychiatrist at the College of Physicians and Surgeons, Columbia University. She holds M.D. and Ph.D. degrees and studied at Pennsylvania State College, Johns Hopkins, Rush Medical College of Chicago University, and at universities abroad.

"If a man knows what he is going to be up against and is equipped with insight and devices to cope with the anticipated situation, the probability is that he will be able to avoid much of the shock that he would otherwise feel," Dr. Powdermaker said in speaking of the task ahead of her. "He might even be able to avoid completely incapacitating ailments detrimental to the war effort. This is as true of the merchant marine as of the Army and Navy, where much useful work has already been done.

"Knowledge of what to do in an emergency situation gives a man a greater sense of security and increases his ability to act effectively."

Health Motion Picture Catalog Available

The Division of Public Health Education has just completed a new catalog of the Department's motion picture library which comprises nearly one hundred films on public health subjects.

The catalog gives a brief synopsis of each picture, together with detailed information concerning the conditions to be complied with by borrowers. The description of each picture produced by the State Department of Health is illustrated with a "still" from the film. The titles are arranged alphabetically and are also indexed by subject for easy reference.

Copies may be obtained on request from the Supervisor of Visual Instruction, State Department of Health, Albany, New York.—*Health News*

New Diet-Scoring Device

A simple and graphic method of evaluating individual diets is outlined by Frances Livingston Hoag, M.A., in a new booklet, *Visual Food Values*, published by the Philadelphia Inter-State Dairy Council and dedicated to the late Dr. Mary Swartz Rose.

Featuring the dietary measuring rods known as "shares" devised by Dr. Rose, the booklet explains in detail how one may quickly score his diet by means of the accompanying set of 128 attractively colored cards illustrating foods in amounts commonly considered average servings. On the reverse sides of the cards are charts which show the food values in shares. The cards may be cut apart and organized into the following groups: milk, fruits, vegetables, cereals and breads, meat, fish, cheese and eggs, fats, and sweets. This makes it easy to visualize and to remember what each food group can be depended on to contribute to one's daily dietary needs. A large chart designed for use with groups in scoring diets and another for recording the individual diet are included with the set.

While the "share" method is not accepted as simple by everyone, it has been successfully used in nutrition classes as low as the sixth grade. Students in both the secondary school and in college also use it. Teachers, nutritionists, homemakers, doctors, dietitians, nurses, and cafeteria managers are the groups for whom this material was designed.

Visual Food Values may be obtained from the Philadelphia Inter-State Dairy Council, Twentieth and Race Streets, Philadelphia, at $1.25 a copy.

Reprints of Study on Coding Medical Data on Birth Certificates

A paper titled "Statistical Aspects of Coding and Tabulating Medical Data on Birth and Stillbirth Certificates," by Dr. J. V. DePorte, Dr. Sylvia L. Parker, and Elizabeth Parkhurst, has been reprinted from the June issue of the *American Journal of Public Health*. The authors are the director, assistant statistician, and senior statistician, respectively, of the Division of Vital Statistics. A limited number of these reprints is available for distribution to public health workers who are inter-

ested in the subject. Requests should be addressed to the Division of Vital Statistics, New York State Department of Health, Albany.

ABC's of Safe Weight-Lifting

To minimize the number of sprains, strains, hernias, and other weight-lifting injuries among untrained workers engaged in war production, the Division of Labor Standards, United States Department of Labor, has prepared a bulletin for the guidance of plant managers and supervisors.

The bulletin recommends the following basic principles, applicable to home and farm as well as to industry, all of which are discussed in detail and attractively illustrated: good planning by management in the use of mechanical lifting and conveying devices, and in controlling the amount, pace, and duration of manual lifting and carrying; proper selection of workers for heavy jobs; and the careful training and constant supervision of workers in safe lifting and carrying practices.

This publication (*Guide to the Prevention of Weight-Lifting Injuries*, Special Bulletin No. 11, United States Department of Labor) is for sale by the Superintendent of Documents, United States Government Printing Office, Washington, D.C., at a cost of ten cents per copy. The New York State Department of Health does not distribute this bulletin.—*Health News*

Darkfield Facilities Available to Physicians

Facilities for darkfield examinations for syphilis are available to physicians at seventeen social hygiene diagnostic centers operated by the Bureau of Social Hygiene of the New York City Department of Health.

This service is offered without charge to all physicians to aid them in the diagnosis of early syphilis. To obtain this and other services, take your patient to the most convenient social hygiene center, or send the patient with a written request. After the examination, the patient will be instructed to return to the referring physician. Reports are made directly to the physician by telephone and confirmatory letter.

For arrangements with the center nearest your office, and the hours during which laboratory technicians are on duty, call your district health officer or the central office of the Bureau of Social Hygiene, WOrth 2-6900, extensions 214 or 442.

Refresher Courses in Venereal Disease

The Clinical Refresher Course in modern methods of diagnosis and treatment of venereal disease has been in progress during the summer at the New York City Health Department, under the auspices of the Bureau of Social Hygiene. The course is open to all New York physicians.

Meetings are held every Wednesday morning at 9:00 A.M. in Room 330 of the Health Department building, 125 Worth Street, Manhattan, under the direction of Dr. Louis Chargin, consultant.

Whenever possible, patients are used in the demonstrations, and treatment methods may be observed in the Central Clinic. Literature is available. Discussions range over the entire field of venereal disease, including syphilis, gonorrhea, chancroid, lymphogranuloma venereum, and granuloma inguinale.

Physicians who attend may be reached at WOrth 2-6900, extensions 214, 252, or 442.

New Publications on Venereal Disease

The Bureau of Social Hygiene, New York City Department of Health, has prepared new informational material for the medical profession, designed to keep the general practitioner up to date on modern methods of diagnosis and treatment of venereal diseases.

This material includes a new edition of "The Diagnosis and Treatment of Chancroid, Granuloma Inguinale, and Lymphogranuloma Venereum" (8 pages); "Sulfathiazole Treatment of Gonorrhea" (blotter); and "The Physician's Responsibility in Premarital Examination" (blotter).

Other pamphlets still available to the medical profession include: "Office Procedures in the Laboratory Diagnosis of Venereal Disease" (16 pages); "The Golden Opportunity—Primary Syphilis" (4 pages); "Clinical Digests of Syphilis in Pregnancy and Syphilis in the Newborn" (8 pages); "Diagnosis and Management of Congenital Syphilis" (4 pages); and "Syphilis in Pregnancy" (4 pages).

Copies are available without charge on request to the Bureau of Social Hygiene, Department of Health, 125 Worth Street, New York 13, New York. Copies in quantity may be obtained by medical societies and schools in the City of New York.

Health Area Map

The Statistical and Graphic Service of the Charities Aid Association has recently completed a Health Area Map of New York City which shows in detail the boundaries of each unit according to the 1940 revision of the census. Since the federal census is taken only every ten years, the boundaries of the areas are established for this period. The Department of Health classifies important vital statistics of New York City according to these units. The health-center districts thus are made up of groups of health areas. From the time of the establishment of the health area units of New York City, the Association has shared in their systematic organization.

The assistant director and statistician of the Association has served for years as chairman of the joint committee of the Health Department of the City of New York, the Welfare Council, and Neighborhood Health Development in the definition of the boundaries of the health areas.

ENGLISH DOCTOR WANTS AMERICAN CORRESPONDENT

The Medical Society of the State of New York recently received a letter from an English doctor, now serving in the RAF, who wants to correspond with an American doctor about his own age.

The doctor's name is P. B. Appleyard, and he reports in his letter that he is a graduate of Cambridge, 27 years old, and a former country practitioner. He may be reached at the following address: % Inglemere, Easby Drive, Irkley, Yorkshire, England.

Medical News

OCD to Supply Four-Stretcher Ambulance Bodies

MOST American cities have insufficient ambulances to meet emergency demands in the event of an air attack, James M. Landis, Director of Civilian Defense, said in announcing plans for the distribution of 800 four-stretcher ambulance bodies to cities in the target areas.

The ambulance bodies, which are made of wood and other noncritical materials, can be mounted on the chassis of a Ford, Chevrolet, or Plymouth four-door sedan, models 1939–1941, which are to be provided by the cities. The ambulances are roomy enough to carry four stretchers on built-in racks and still leave space for an attendant to ride with the casualties and give necessary care en route.

According to Mr. Landis, four-stretcher ambulances have been shown to be essential in the efficient handling of catastrophes that result in the injury of large numbers of civilians.

The ambulance bodies will be distributed free of charge to selected communities, but because of the limited supply, they can be sent only to cities in exposed areas and only after the city has notified OCD that the chassis will be supplied.

Allocation of ambulance bodies has been made on the basis of population of cities in target zones, with consideration of special transportation problems, the number of four-stretcher ambulances already available, and other special war hazards.

OCD Publishes New Recommendations on Burns and Wound Infections in Air Raid Casualties

THE Medical Division of the Office of Civilian Defense has revised its pamphlet, "Treatment of Burns and Prevention of Infections," to incorporate new technics that have been developed within the past year. The pamphlet, drawn up by the Committee on Chemotherapeutics and Other Agents and the Subcommittee on Burns of the Committee on Surgery of the Division of Medical Sciences of the National Research Council, was originally intended for the armed forces, but the recommendations in it have now been modified for adaptation to the problems of treating civilian casualties.

The sulfonamides must be used more cautiously in the treatment of civilians than they are in the treatment of military casualties, according to the pamphlet, because the possibility of toxic effects is increased in the unselected civilian population and also because civilian injuries can have hospital attention within a reasonably short time.

The pamphlet advises sodium sulfadiazine as the drug of choice for parenteral administration for intra-abdominal wounds. This is considered preferable to oral therapy during the first forty-eight hours. Special emphasis is placed upon the danger of giving sulfonamide drugs to a patient who is not voiding normally.

For the emergency care of burns the pamphlet suggests that morphine sulfate, one-half grain, be administered at the scene of the incident and no local therapy applied to the burned area, with the exception of sterile gauze to prevent infection in the exposed surfaces.

The most notable change in the pamphlet is the withdrawal of the recommendation to use ointments or jellies containing tannic acid in the first-aid treatment of burns. The new advice states that when definitive treatment cannot be carried out within two hours, the patient should receive enough morphine to relieve the pain, and the burned surfaces should be covered with sterile boric acid ointment or petrolatum, over which one or two layers of gauze of fine mesh (44) is to be smoothly applied. Over this, thick sterile gauze or sterile cotton waste is to be placed and the entire dressing is to be bandaged firmly but not tightly.

The administration of large amounts of plasma is strongly advocated in the pamphlet, which recommends, in severe cases, quantities up to 12 units or more during the first twenty-four hours.

Emphasis is also placed upon masking the patient and his attendants in order to minimize the danger of secondary infection.

County News

Broome County

Only 29 persons among the 948 men and women employed in eight Broome County industries who were x-rayed in May by the state's mobile x-ray unit have been notified to see their private physicians for further examinations.

The survey was conducted jointly by the State Departments of Health and Labor in conjunction with the Broome County Tuberculosis Association and the Broome County Medical Society.

Of the 29 cases recommended for the attention of private physicians further examination "probably will show that 11 have clinically significant tuberculosis, a condition which should be treated," the association announced.

Eighteen conditions regarded as "other than tuberculosis" were classified as "miscellaneous" and included possible heart conditions, lung abscesses, and lung tumors.

A total of 919 persons have received word from the tuberculosis association that their lungs are healthy, but it was called to the attention of these persons that the lungs are only one part of the body and that a complete physical examination "naturally is to everyone's advantage," the association said.

The desirability of a further physical checkup of those whose lungs are healthy was emphasized by the association in view of the wartime demands upon the time of physicians, whose duties have been multiplied by many doctors entering military service, as a precaution against possible future illness, the association explained.

The percentage of tuberculosis discovered in Broome County "very closely approximates" the average usually disclosed by more extensive surveys in other communities, they added.

Dr. Elton R. Dickson, president of the Broome County Medical Society, commended the survey

and said that "the aims and objects and results have been carefully investigated by the society's governing board and have met with our full approval."

He added that the cost of treating an active, advanced case of tuberculosis is approximately $10,000 and said: "Think what the cost would be of treating, say, only three of the cases discovered."*

Cayuga County

Many of the industrial plants in the community, with the cooperation of the Cayuga Health Association, are offering their employees a free chest x-ray.

The results of the x-ray will be a matter of confidential information between the employees and their family physicians or the plant physician. A large number of employees are reported welcoming this opportunity for a chest x-ray.

This program, which is being carried on by employers, the Cayuga Health Association, the Cayuga County Medical Society, and the City and State Health Departments, is a vital part of a nationwide program to find and fight tuberculosis in its early stages as a means of conserving manpower for the war effort, and also to prevent an increase in the disease due to the fact that many people are working long hours and under high tension.*

Erie County

Dr. Stockton Kimball, associate in medicine and pharmacology of the University of Buffalo Medical School, will take a special three-month course in tropical medicine preparatory to giving specialized instruction in this field in the Medical School.

The course is sponsored by the Association of American Medical Colleges through funds supplied by the Markle Foundation. Dr. Kimball left Buffalo the end of August to study in the Army Medical School, which is associated with the Walter Reed Hospital in Washington, for two months and then will spend one month in practical work in tropical diseases in Central America.

He will return to Buffalo about December 1 to resume his teaching as well as his private practice. The designation is not an Army appointment, but the course is identical with the one given members of the Army Medical Corps.*

Kings County

The following item is from the Brooklyn *Eagle* of August 3:

"A delicate, five-hour brain operation, on an Australian soldier, performed by Capts. Julius Tepper, of Sunnyside, and Frederick Hidde, of Wisconsin, under the most trying conditions at a New Guinea air base, today was hailed by the medical world as one of the miracles of modern surgery.

"The soldier, whose brain was knocked out by an exploding airplane tire, according to dispatches from the battlefront, is well on the road to recovery, thanks to the skill of the American surgeons.

"Captain Tepper and his colleague worked five hours on the injured soldier. Despite unbearable heat and lack of modern facilities, the surgeons replaced the forefront of the soldier's brain, which had been knocked through his forehead.

"Skin was sewed over the opening, which, the doctors said, will later be covered by a metal plate.

"Although a certain degree of uncertainty exists after a brain operation, the surgeons said, according to the dispatch, they were hopeful that no personality change would occur.

"Captain Tepper is a graduate of New York University. He was associated with the City Hospital and Beth Israel Hospital, both in Manhattan."

Monroe County

Broadcasting by the county society was resumed Sunday, August 1. President G. Kirby Collier, M.D., opened the season with a roll call of leaders of wartime activities.

The Health Education Committee has submitted a tentative program of scheduled broadcasts which high-light the society's social, community, and wartime contributions and present the newer knowledge of medicine and the work of the subcommittees of the Public Health Committee. Any measurable degree of success in the presentation of this program will raise the prestige of this broadcast and of this Society to new heights of community esteem. The major theme is "Medicine in a Changing Social World."

Deputy Health Officer, Norris G. Orchard, M.D., heads the special committee concerned with the preparation of papers for broadcasting.

Speakers are urged to complete their papers and send them to Dr. Orchard at the Health Bureau, 82 Chestnut Street, Rochester, early, and not later than two weeks before the time of broadcasting.

Vitally important to the success of the broadcast is the creation of a reserve pool of papers for use in an emergency. Physicians are urged to contribute papers to this pool. There has never been an adequate number of papers in this reserve pool. In years past, some of the finest broadcasts have been papers contributed to it.—WALTER C. ALLEN, M.D., *Chairman*, Health Education Committee

New York County

Dr. Frank A. Calderone, Deputy and Acting Commissioner of the Health Department, recently announced that 34 school physicians had been assigned to examine children applying for admission to vocational high schools in the fall. Dr. Calderone stressed the fact that the services of the school physicians will be made available only to those students who cannot afford to visit a private doctor. Examinations were held at vocational high schools throughout the summer. The project is a cooperative effort carried on by the Health Department and the Board of Education.

Since last year the Board of Education has required complete physical examinations of all children entering the city's 26 vocational high schools. The purpose of these examinations is to determine whether pupils are physically fit for the type of vocational training for which they have applied, and whether or not the school program should be modified to fit their individual physical capacities.

"With more and more of our vocational high school pupils preparing for war industries, the need for physical examinations becomes increasingly great," said Dr. Leona Baumgartner, Director of the Bureau of Child Hygiene of the Health Department. "Heavier physical demands and increased mental strain are part and parcel of war work these days. So we must see to it that all boys and girls who plan to enter industry get in the best possible physical shape before they are graduated. And we must also do our very best to see that the students choose work for which they are emotionally as well as physically fitted."

Dr. Baumgartner pointed out that every pupil who has applied for vocational training has been

* Asterisk indicates that item is from local newspaper.

Medical News

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mendations of Colonel George Baehr, Medical Officer of the Office of Civilian Defense. The terms "Emergency Medical Unit" and "Ambulance Unit" have been discontinued, and the personnel and equipment of E.M.S. have been reorganized primarily in terms of "Medical Express Teams."

Each Medical Express Team (MXT) comprises one physician, one nurse, two auxiliary personnel, one regular ambulance or station wagon ambulance with driver, and one passenger automobile which will carry the professional and auxiliary personnel.

There will be a secondary unit to be known as an Auxiliary Ambulance Unit (A.A.U.) comprising a station wagon equipped with two or four stretchers and with a driver or alternate driver available.

An inventory of the number of Medical Express Teams and Auxiliary Ambulance Units available in all parts of the county is now maintained by the Chief Medical Officer in the County Control Center in White Plains, and under the "Mutual Aid Plan," these units in all parts of the county are subject to requisition by the Chief Medical Officer for service elsewhere in the county in the event of a catastrophe that overwhelms local resources. The same Mutual Aid Plan of course, applies to fire, police, public works, communications, utilities, welfare services, etc. In no event however, would the Chief Medical Officer at the County Control Center requisition the full medical strength of any community for service elsewhere.

The Office of the Chief Medical Officer at the County Control Center is staffed alternatively by Dr. E. L. Burwell, Director of Emergency Medical Service for the Westchester County War Council, Mr. J. E. Bryan, his deputy and Executive Secretary of the County Medical Society, Dr. William A. Holla, County Health Commissioner, and a staff of trained assistants.—*Westchester Med. Bull.*

* * *

Dr. Amos O. Squire, of Ossining, Westchester County Medical Examiner, began his twenty-fifth year of service to the county on July 1. Dr. Squire has investigated ten thousand deaths in the course of his service during the past quarter century.

Elected as Coroner in 1906, Dr. Squire served in that office for two terms and then became Chief Medical Officer at Sing Sing Prison. When the Coroner system was abolished and the position of Medical Examiner was established in 1925, Dr. Squire was appointed and has since served in that capacity. When he was Coroner for the first time, thirty-seven years ago, there were four such officers for the entire county. Later these were cut to two, and since 1925 as Medical Examiner, Dr. Squire has been on duty, technically at least, for twenty-four hours every day. Occasionally, he takes a brief vacation when his acting medical examiner, Dr. E. H. Huntington, takes over, but when Dr. Squire is within the county's boundaries he must answer a call.

Dr. Squire pointed out in a public statement on July 1, that during the past eighteen years, the county's population has grown by about 200,000 and there are now twice as many deaths to investigate as there were when he first assumed his position. However, back in 1924, the Coroner's budget amounted to $15,050, while in 1943 the budget is only $14,600 despite the tremendous increase in services rendered.

* * *

The annual meeting of the New Rochelle Medical Society was held at the Wykagyl Country Club on June 29. Forty-five members and guests were present. One lone foursome undertook to play a round of golf and needless to say, all returned winners. An excellent steak dinner plus the trimmings was served at 8 P.M. Among the guests at the dinner was Mr. Arthur H. Hayes, Manager of Station WABC, who brought with him a transcription of a recent radio program in which Dr. George C. Adie, as President of the County Medical Society, had participated. Mr. Hayes made an interesting humorous talk on radio and medicine.

Resolutions were presented on the deaths of the late Doctors Louis B. Chapman and Herman E. Doege. Dr. Reid R. Heffner was elected president, succeeding himself, Dr. Paul C. Morrissey, formerly secretary, became vice-president, and Dr. C. Whitney Banks was elected secretary and treasurer. Golf prizes were won by Drs. Kremin, Banks, S. L. Harris, and J. R. Jeppson. Door prizes were won by Drs. E. E. Kahn and F. M. Wright and (believe it or not) by Jim Bryan, Executive Secretary of the County Medical Society. Mr. J. Fred Coots, of Larchmont, a well-known local song writer, entertained following the business meeting.

Wyoming County

At the annual child health consultation held in Silver Springs on July 23, Dr. G. S. Baker, of Wyoming County Medical Society, gave a physical examination to 13 preschool children.

Mrs. Camille Toolen, dental hygienist from the New York State Department of Health, inspected and cleaned the children's teeth.

It was urged that physical and dental defects found be corrected by taking the children to the family physician or dentist.

Miss Anna A. Schmidt, Public Health Nurse, assisted in organization and at the consultation.*

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Charles S. Craig	71	Buffalo	August 15	Hilton
George M. Dunaif	64	L.I.C. Hosp.	May 9	Brooklyn
George T. Imrie	71	Trinity	August 28	Rochester
Nathan Lane	58	P. & S., N.Y.	July 19	Brooklyn
P. Dickinson Maxwell	31	Syracuse	August 21	Rome
Herbert E. Orange	35	L.I.C. Med.	May 3	Hempstead
Max L. Polowe	63	Univ. & Bell.	April 14	Manhattan
Edgar T. Ray	63	P. & S., N.Y.	August 27	Brooklyn
Robert J. Reynolds	52	P. & S., N.Y.	August 14	Potsdam
William Rothman	33	R.C.P. & S., Edinburgh, R.F.P. & S., Glasgow	June 21	Brooklyn
William K. Terriberry	63	P. & S., N.Y.	April 22	Binghamton

provided with a standard physical examination form. She urged all students who can possibly afford to do so to be examined by their family physicians and to have him record his findings on the standard form. Of the 13,000 boys and girls already enrolled, 40 per cent have been examined in this manner by their family doctors. Those who must take advantage of the free Health Department examinations will find that cardiac, orthopaedic, and eye consultation services are available for those requiring it. These three consultation services are located at the Lower East Side Health Center, 341 East 25 Street, Manhattan.

The details for the plan for these examinations were worked out by Dr. Robert W. Culbert of the Bureau of Child Hygiene, Department of Health, and Dr. I. H. Goldberger, assistant director of the Bureau of Health Education of the Board of Education.

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Dr. Frank E. Adair was recently re-elected vice-president of the American Society for the Control of Cancer at its annual meeting in New York City; Dr. Cornelius P. Rhoads was elected secretary.

• • •

Dr. Richard Kovács has been appointed to the National Faculty in Physical Therapy of the Wartime Graduate Medical Meetings, to serve as regional instructor for Connecticut and Rhode Island.

• • •

The newly elected officers of the New York Society for Clinical Ophthalmology for 1943–1944 are as follows: President, Sigmund A. Agatston; vice-president, Milton L. Berliner; recording secretary, Leon H. Ehrlich; corresponding secretary, Benjamin Esterman; treasurer, Daniel Kravitz.

• • •

Edward B. Gresser, M.D., has been appointed a consultant on tropical ophthalmology to the Secretary of War.

• • •

Lieutenant Sidney Licht, M.C., chief of physical therapy and occupational therapy at Lovell General Hospital, Fort Devens, Massachusetts, has been promoted to the grade of Captain.

• • •

Lieutenant Colonel William F. MacFee has been elected vice-president of the recently organized "American Medical Society of the European Theatre of Operations."

Oneida County

Dr. Robert W. Hurd has returned to Utica to practice medicine after a year's association and practice with Dr. Ranald E. Mussey, of Troy, in internal medicine. Doctor Hurd was a staff member of the Samaritan and Leonard Hospitals in Troy.

He obtained his medical education in the University of Rochester School of Medicine. After his graduation he spent a year as intern in Strong Memorial Hospital, Rochester, and another year as assistant resident physician and assistant in medicine in the University of Rochester.*

St. Lawrence County

Ogdensburg physicians are cooperating in efforts to make the Red Cross blood bank clinics, which began in August, a success.

The physicians, in addition to making free examinations of donors, are in charge of the clinics at the A. Barton Hepburn Hospital. Dr. F. E. Clark made the arrangements with the Red Cross leaders for the physicians to aid in the clinics.

The first blood bank clinic was held at the Hepburn Hospital in cooperation with Red Cross officials from Brockville. The Brockville unit owns the equipment necessary for the clinic and is sending it to Ogdensburg for the clinics there.*

Suffolk County

A special program honoring five members of the Suffolk County Medical Society who have completed a half century of practice was held recently at the quarterly meeting of the society at Kings Park State Hospital. The "Jubillarians," Dr. William N. Barnhardt, now of Toronto, Canada; Dr. G. Herbert Carter, of Huntington; Dr. William E. Foster, of Babylon; Dr. Frank Overton, of East Patchogue; and Dr. Frank D. Peterson, of Mattituck, were each presented with a war bond by Dr. David Corcoran, Dr. Burdge P. MacLean, Dr. John B. Healy, Dr. William H. Ross, and Dr. George Bergmann, respectively.

Dr. Thomas A. McGoldrick, president of the Medical Society of the State of New York, praised the Jubillarians, and paid tribute to their achievements.

Dr. Barnhardt, who was on the staff at Central Islip State Hospital for twenty-eight years, was a pioneer in tuberculosis research. A veteran of of World War I, he had attained the rank of lieutenant colonel, and has had several subsequent calls for periods of active duty with the Army. Dr. Carter, Dr. Foster, and Dr. Peterson have completed fifty years of service as family physicians in their respective localities. Dr. Peterson was formerly public health officer of Southold town. Dr. Overton was instrumental in the establishment of the Suffolk County Department of Health and was one of the founders of the County Tuberculosis Sanitorium and the Tuberculosis and Public Health Association, and served for a number of years as district state health officer. He was a former editor of the NEW YORK STATE JOURNAL OF MEDICINE and is, at the present time, engaged in bringing the history of medicine in Suffolk County up to date.—*Smithtown Star*

Westchester County

Dr. Victor F. Cincotti, of New York City, has been appointed resident physician at Lawrence Hospital, Bronxville.

Dr. Cincotti was formerly connected with the Metropolitan Hospital in New York.*

• • •

The Board of Education in Pelham has adopted a novel but logical way of appointing a school physician. Applications are solicited from local physicians interested in the appointment, and are then submitted to an Advisory Committee on Health, composed of four physicians who reside in Pelham but practice exclusively in New York or elsewhere. This advisory committee is using as a guide for the medical qualifications of the appointee the "Standards for Physicians in Schools" proposed by the American Academy of Pediatrics as published in the *J.A.M.A.*, February 20, 1943. The report of the advisory committee has not yet been made public. —*Westchester Med. Bull.*

• • •

Emergency Medical Services attached to the Offices of Civilian Protection throughout the county have recently been reorganized in line with recom-

psychiatric help for specific individuals belonging in this group.

This clinic has the endorsement of the New York City Committee for Mental Hygiene and the National Committee for Mental Hygiene.

In discussing the work of the clinic Dr. Rennie made the following statements:

"It is estimated that by the end of this year over 100,000 men in New York City will have been rejected or discharged from the Army because of psychiatric disability. Neuropsychiatric rejectees by the Induction Board are estimated for 1943 to be between 60,000 and 70,000 men. Neuropsychiatric dischargees from the Army are estimated to be between 20,000 and 40,000. The problems presented by these men can be considered to be representative of the group throughout the country, who will constitute a tremendous wartime emergency problem; a problem which is likely still to exist and even to grow after the war. There are various organizations in New York City set up to help these men find employment and to that extent aid in their rehabilitation.

"It was our desire to establish a psychiatric rehabilitation clinic for the investigation of the ways and means of personal rehabilitation of these men. This clinic aims to fill two large functions:

"1. We need to know a number of facts about this problem—what percentage of these men can be re-employed, how much time and expense would be involved in their total treatment program, how much can be accomplished by short-term, incisive procedures, what total resources are available in a community for retraining, re-education, re-employment, etc. Specifications of this kind are needed and are not available.

"2. The clinic will serve as an actual treatment center for men in need of a total over-all service in their own rehabilitation. Obviously, trained psychiatric medical help is imperative."

Official from Argentina Visits Schenectady Hospital

THE American nursing profession received high praise from Dr. Hector A. Coll, of the department of public health at Sante Fe, Republic of Argentina, who was in Schenectady late in July to inspect Ellis Hospital. He is making a tour of leading hospitals and communities in the United States in order to carry the latest public health methods back to his native country.

"Nursing is at an extremely high level in the United States," Dr. Coll said, "possibly the highest level in the world. I was amazed at the high type of women who constitute the nursing profession here and at the high standard of education required of them."

Dr. Coll said that in his opinion the high nursing standards in this country have been of material aid to the medical profession.

"It is a pleasure for one from another country to see this standard of nursing," Dr. Coll declared. "In some ways, we can consider that it forms the backbone of the medical profession, for proper nursing and care of the sick is as important as the skilled administration of medicines and surgery."

Dr. Coll is taking the postgraduate public health course at Johns Hopkins University and has visited hospitals in such cities as Philadelphia, Baltimore, and Washington. He has been studying operations of the various federal public health bureaus. He went to Schenectady to inspect Ellis Hospital on recommendation of Johns Hopkins officials. . . . .

The South American physician expressed his enthusiasm of public health work in New York State, saying that the state setup and program are as efficient as any that he has seen.

The United States and Argentina have tackled the public health problem in entirely different manners, Dr. Coll explained. In the United States the program is worked out from the point of view of securing pure water supplies and sanitation facilities first, with the medical care of individual patients following. In Argentina, medical care of the individual comes first and then progress is made toward the establishment of better sanitation and other factors.

"Both systems are aimed at controlling disease and maintaining a healthy population," he said, "and both systems seem to work equally well."

Medical standards are about the same in the two countries, Dr. Coll said, but the education system is different. Instead of the private medical schools of the United States, all medical training is at state schools in Argentina. Consequently, standards are exactly the same for the entire country and physicians can practice in any state of the country.

In the United States, physicians can practice only in the state in which they are licensed. When a resident of Argentina begins the study of medicine he can, if he desires, at once begin work among patients in the state hospitals which are connected with each medical school. Thus by the time he has his degree he already has had considerable experience.

Dr. Coll was accompanied here by Dr. Louis M. Barreiro, also of the Sante Fe department of public health.—*Schenectady Gazette*

Employment Service Begun in Military Hospitals

THE New York regional office of the United States Employment Service will assign trained interviewers to all Army hospitals in the metropolitan area, to assist convalescent soldiers to obtain civilian jobs after they are discharged, according to W. Cameron Edey, assistant regional director of the U.S.E.S. Interviewers have been assigned to the Naval hospitals in Brooklyn and St. Albans, Queens.

Mr. Edey emphasized the fact that the personnel work at the military hospitals is only one phase of the program operated by the U.S.E.S. and the re-employment advisory division of the Selective Service System, under which men honorably discharged from the armed forces for disability or age are placed in jobs, in most cases better than the ones they had left.

The Selective Service Act guarantees a worker the right to return to his old job if that job still exists and he is able to fill it, but Mr. Edey said that nearly half the discharged soldiers are unwilling to return to their old jobs and are obtaining jobs at better pay. The number who have found new jobs through the U.S.E.S. in this area is not known, but Mr. Edey said it was probably 5,000.

When the re-employment service is in full operation at the hospitals, interviewers will make a complete report of the capabilities of each man desiring

Hospital News

New System for Applications for Hospital Construction

A NEW system of handling applications for hospital construction was announced to *The Modern Hospital* on July 19 by Everett W. Jones, head hospital consultant of the War Production Board. Mr. Jones has been working on this project for several months.

This new system provides a relatively simple preliminary application for all projects costing more than $2,500. When this is filled out, filed, and approved, a hospital will know definitely that its proposed project has been declared essential and that priorities will be given before it makes out its W.P.B. Form 617 (formerly PD-200). This will avoid the possible loss of thousands of man hours and dollars in preparing final working drawings and detailed material and equipment lists before final approval had been given by W.P.B., Mr. Jones declared.

The new preliminary application is in two parts, W.P.B.-2814 and W.P.B.-2814.1. The former requires identification data, a brief description of the construction program, preliminary cost estimates, extent to which public utilities will be affected, whether other construction will be required to put this project into complete operation, the time required for construction and for installing equipment, whether workmen will be available to do the construction, whether materials can be obtained, endorsements of the project by government and other agencies, and other applications already filed on this project.

Form W.P.B.-2814.1 deals with the need for the project. In addition to preliminary plans or rough sketches, it requires answers to the following questions:

Furnish the following information regarding present facilities:

1. Number of beds and bassinets now installed: tota obstetric, neuropsychiatric, tuberculosis, contagious, newborn.

2. By placing additional beds in private and semiprivate rooms and wards and by utilizing visitors' rooms and other convertible space, not covered in No. 3 below, without reducing floor area per bed below approximately 75 square feet, give number of beds and bassinets which could be added and number of bassinets which would then be reserved for newborn.

3. Is any space in the hospital used for graduate nurses, student nurses, or other personnel? Could this space be used for patients?

4. Data from last report to A.M.A.: number of beds, number of bassinets, date of report.

5. Explain changes in present capacity (answer to 1) from last report to A.M.A. (answer to 4), giving dates on which changes occurred.

6. Give number of operating rooms, delivery rooms, labor rooms.

7. Service rendered for each month of present year and annual totals for two preceding years: period covered, total patient days (including new-born), new-born patient days, average length of stay (medical, surgical, obstetric), per cent occupancy.

Give complete description of new facilities, showing number of beds, bassinets, and other facilities to be built.

Give other hospital facilities in locality and population changes.

1. Give following information for each hospital (excluding mental and tuberculosis hospitals) in your county and in adjoining counties in your state that lie wholly or partly within a 25 mile radius of your hospital (include facilities not now in operation): (*a*) name and address of hospital; (*b*) number of beds and bassinets now installed and number of basssinets reserved for new-born; (*c*) total number of patient days of service rendered during latest twelve-month period for which data are available, giving dates and number of days' service for new-born included in above; (*d*) per cent occupancy; (*e*) average length of stay of patients; (*f*) beds not included in 1*b* (if none, indicate this fact) or beds constructed, under construction, or approved for construction with dates when they will be available; (*g*) number of beds included in 1*b* that were formerly in operation and are not now, owing to closing of institution, shortage of doctors, shortage of nurses, or for any other reason.

2. (*a*) Give 1940 population figures, showing urban and rural separately, for your county and for each adjoining county in your state that lies wholly or partly within a 25 mile radius of your hospital; (*b*) give population estimates of above counties based on latest ration book distribution.

Nurses' homes:

1. Give number of student nurses in training a year ago and now.

2. Is it planned to increase the number of student nurses in training and, if so, by how many?

3. Has the plan for increasing students in training been approved by the appropriate state organization?

4. Give the total possible number of beds in present nurses' home now occupied by each of the following: graduates, students, others.

5. Have efforts been made to lease suitable quarters to house nurses? It not, give reasons.

6. Is there available for purchase or lease an existing property with a building that might be converted to hospital use as an annex, etc.?—*Modern Hospital*

Rehabilitation Clinic for Service Men

A PSYCHIATRIC rehabilitation clinic for discharged service men and men rejected by the Induction Board was opened in New York City on August 19. It is to be known as the Rehabilitation Clinic of the New York Hospital and meetings will be held each Thursday evening in the Outpatient Department of the Payne Whitney Clinic of that institution.

Cases will be selected by appointment, which should be made through Mrs. Melly Simon, director of the Social Service Department of the Payne Whitney Clinic.

The basic funds on which to start the program have been granted by the Commonwealth Foundation. The staff will consist of ten to fifteen volunteer psychiatrists, four volunteer social workers, and one full-time paid social worker. The clinic will be directed by Dr. Thomas A. C. Rennie, and social service activities will be under the direction of Mrs. Melly Simon. Facilities will be provided by the New York Hospital for the use of the outpatient department examining rooms. Arrangements have been made with the State Selective Service Board for the referral of cases. Cases will also be accepted by appointment from any of the social agencies of the city which are in need of

psychiatric help for specific individuals belonging in this group.

This clinic has the endorsement of the New York City Committee for Mental Hygiene and the National Committee for Mental Hygiene.

In discussing the work of the clinic Dr. Rennie made the following statements:

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When the re-employment service is in full operation at the hospitals, interviewers will make a complete report of the capabilities of each man desiring

assistance, and this will be forwarded to the U.S.E.S. office in his home town, so that there will be a job waiting for him when he goes back.

Local U.S.E.S. offices have job-analysis forms by which employers can indicate the minimum physical requirements for each job, so that, no matter what his injury, a veteran can usually find some work he is able to perform. At present, Mr. Edey said, the New York office has had more openings for disabled veterans than it has been able to fill.

The re-employment advisory division of the Selective Service System has a staff of fifty volunteer workers who assist the U.S.E.S. in finding jobs for veterans in New York. It has handled 4,000 cases since January 1.—*New York Herald Tribune*

Improvements

A complete miniature hospital, with beds, gadgets, and pretty nurses in crisp uniforms, has been set up at Adelphi College in Garden City for the first-year students in the School of Nursing.

The miniature ward will make it possible for the first class at the School, and for succeeding classes, to complete their required one hundred and fifty hours of nursing arts experience before they finish their first year of academic work on the campus and go on to clinical training at local hospitals.

The 25 girls who make up the first class of the School of Nursing started their training at Adelphi College last January and will be ready for assignment to Meadowbrook and Nassau hospitals on September 20. The June class will enter the hospitals in January and the September class will be ready for clinical training next May.

Under the new federal act which created the U.S. Cadet Nurse Corps, students enrolled in Adelphi School of Nursing will be available for essential nursing service when they have completed the thirty months of their accelerated course leading to Registered Nurses' certificates. All necessary expenses of this course are paid by the federal government for students enrolled in the Cadet Nurse Corps.

The miniature hospital, in the Science Building on the campus, will be used for the start of the cadet nurses' "boot training." The girls, using each other as patients, will learn such fundamentals of their profession as bed-making, personal care of the patients, and simple therapeutic procedures.*

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Because the officials of a Ridgewood firm read in the newspapers that $1,500 had been contributed by the students of Grover Cleveland High School to the Wyckoff Heights Hospital in Brooklyn toward a new ambulance fund, that fund is now $600 larger, it was disclosed by Herman Ringe, Sr., president of the hospital's board of trustees.

Recently the newspapers published the story of generosity of Principal Charles A. Tonsor and the students and faculty of the community's high school in presenting a two-night program, "Jeep Jamboree," the proceeds to be used to purchase an ambulance for the Army and a new ambulance for the local hospital.

Reading that a check for $1,500 had been given by the school, the officials of George Schneider & Company were moved to have a part in providing the funds for a new ambulance. They made out a check for $500 and mailed it to the hospital.

President Ringe, elated by the gift, reported it to the board of trustees at their meeting. The Rt. Rev. Msgr. John C. York, pastor of St. Brigid's R. C. Church, hearing of the Schneider contribution, made out a check for $100.

The ambulance fund now totals $2,100.*

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The nursery at Mercy Hospital in Buffalo was recently equipped with new plastic and chrome cribs.*

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Twenty per cent of the net proceeds of Saratoga racing at Belmont Park on Travers Day, August 14, were contributed to the Saratoga Hospital in Troy, according to George H. Bull, president of the Saratoga Association.

The charities benefit date was set at a conference of racing officials in New York. On that day all net proceeds went to charity.

Others sharing in the profits were:

National War Fund, Inc., which includes the United Service Organization, United Seaman's Organization, and War Prisoners Aid; Nassau County Hospital; and Stage Door Canteen.

• • •

New Rochelle Hospital received $15,000 from the estate of Caroline Stetson, formerly a resident of New York City, it was announced recently by Alex E. Norton, superintendent. The fund is being paid under decree of the Surrogate's Court, New York County, "to the New Rochelle Hospital for the care of crippled children and infantile paralysis children regardless of creed or color."

More than a year ago a request was received by the hospital from the executrix of the Stetson estate for information concerning the work in connection with crippled and paralyzed children. The matter was referred to James T. Heenehan, a member of the hospital's board of governors and of the ways and means committee, who has since carried on all negotiations.

Before the decision was made, hospitals in the eastern seaboard area doing work for crippled children were investigated. The New Rochelle institution, because of its excellent therapeutic pool and other facilities, such as the walking and posture rooms and special exercising equipment, was selected as one of the recipients of a $370,000 fund set aside for the care of blind, crippled, and consumptive, and those afflicted with infantile paralysis.

The therapeutic pool was built in 1934 through a contribution by William B. Ward. Last year the Westchester County Chapter of the National Foundation of Infantile Paralysis donated several large mirrors to the hospital to aid in instructing crippled children in the re-education of their crippled muscles.*

• • •

The generous gifts of several laymen, some of whom are members of the Board of Managers and all of whom wish to remain anonymous, have made it possible for the Mount Vernon Hospital to enlarge and improve the reception room and waiting room facilities for hospital visitors.

* Asterisk indicates that item is from local newspaper.

The expense of redecorating and furnishings was approximately $1,500, all of which was donated.*

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The improved east wing of the Geneva General Hospital was opened on August 10. An invitation was extended to all Genevans to attend an open house and reception from 2:00 to 5:00 P.M.*

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The maternity and pediatric divisions of Staten Island Hospital, which are undergoing alteration, are scheduled to be open on September 15.*

At the Helm

Drs. Hans Strauss and Howard Westcott have been appointed active consulting neuropsychiatrist and associate visiting physician, respectively, to the City Hospital in New York.

• • •

Drs. William R. McCarty and Pro. V. Prewitt have received the promotion to associate visiting surgeon at New York City's Willard Parker Hospital; Dr. Josephine B. Neal, the appointment of consulting neuropsychiatrist; and Dr. Emanuel Appelbaum, visiting physician.

• • •

Goldwater Memorial Hospital in New York has announced the following appointments: S. Bernard Wortis, active consulting neuropsychiatrist; Jacob Wachtel, promoted to visiting dermatologist; Emanuel D. Friedman, visiting neuropsychiatrist-in-charge—Third Division; Otto Lowenstein, associate visiting neuropsychiatrist.

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Bellevue Hospital has approved the appointments of Drs. Mary Elizabeth O'Sullivan and Aaron Bell, both of whom were promoted to associate visiting neuropsychiatrist; James L. Wilson, visiting physician, Children's Medical Division; and Harry Bekwin, promoted to visiting physician, Children's Medical Division.

• • •

Metropolitan Hospital has promoted Dr. Henry D. Taterka to associate visiting otorhinolaryngologist.

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Gouverneur Hospital has made Dr. William R. Delzell visiting urologist and has promoted Dr. C. Travers Stepita to visiting urologist; both Drs. William P. MacNamara and Borris A. Kornblith have been promoted to associate visiting surgeon.

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Dr. Clarence W. Hogans has been promoted to associate visiting gynecologist at Harlem Hospital.

• • •

Dr. Thomas W. Baylek has received the appointment of associate visiting surgeon in urology at Municipal Sanatorium, and Dr. William H. Foege has been made associate visiting roentgenologist at the New York institution.

• • •

Dr. Wolfgang A. Casper has been called to active duty as a Surgeon in the United States Public Health Service, Venereal Disease Medical Center, Hot Springs, National Park, Ark.

• • •

Dr. William V. P. Garretson has been appointed consulting neurologist, psychiatrist, and endocrinologist to St. Clare's Hospital in New York City.

• • •

Dr. Wirt C. Groom, senior first assistant physician at the Hudson River State Hospital, became acting head of the hospital under a designation of Dr. Frederick MacCurdy, state commissioner of mental hygiene.

Dr. John R. Ross, retiring superintendent, has left for Cranston, Rhode Island, to take up his duties as superintendent of the Rhode Island State Hospital for Mental Diseases.*

Newsy Notes

A new American Red Cross voluntary course for dietitian aides has been started by the Fifth Avenue Hospital in New York City. Mrs. James G. Macormack, Red Cross volunteer director of the Dietitian Aides Service, simultaneously explained the purpose of the course and extended a plea for 2,000 volunteers from Manhattan and the Bronx.

Ten women volunteer aides were graduated from the Fifth Avenue Hospital course in August. This group constitutes the first class completed in Manhattan. Mount Sinai, Presbyterian, and New York Hospitals will begin similar courses shortly, Mrs. Macormack announced.

After the necessary prerequisite course in nutrition, each volunteer must attend twenty-five lectures and put in fifteen hours of practical work. Upon graduation, she is qualified to supervise tray service to patients, assist in cafeterias, adjust complaints, and generally assist the dietitian in charge. Each dietitian aide must serve a minimum of one hundred and fifty hours a year.

• • •

Nineteen nurses, representing the first class trained in Guatemala, were graduated at a special ceremony in the Hall of Honor of the National Medical Faculty on August 7. They have completed the three-year course of the National School of Nursing, established just three years ago.*

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In appreciation for their efforts in making New Rochelle Hospital's fiftieth anniversary membership appeal a success, Samuel F. McDonald, chairman of the ways and means committee, entertained members of the organization at dinner on July 27 at the Wykagyl Country Club. The drive netted 581 new memberships for the hospital.*

• • •

Doctors on the visiting staff of the Jewish Hospital of Brooklyn have contributed funds to the

Medical and Surgical Relief Committee of America for one of the emergency medical kits that the committee donates to Coast Guard patrol boats and Navy subchasers.

Specially designed by committee doctors for small subhunting vessels, the patrol boat and subchaser medical kit contains drugs, bandages, and an instrument roll. According to Dr. J. P. Hoguet, Medical director of the committee, it is prepared to give immediate emergency treatment to casualties until the ship reaches a base hospital.

So far, more than 500 such kits have been distributed by the committee to the Thirteen Coast Guard Districts and directly to the commanding officers of subchasers. A total of 2,500 kits is the committee's goal in this particular project, said Dr. Hoguet.

In addition to the medical equipment and instructions for its proper use, the patrol boat set carries a simple fishing rig, dried bait, and signaling mirrors—vital tools when a ship may be stranded or when its crew must resort to life rafts.*

. . .

Latin America's first nonprofit hospital insurance plan has been organized in Puerto Rico under a law signed by Gov. Rexford G. Tugwell.

A yearly fee of $6.00 for unmarried persons and $12 for a man and wife, together with all children under 21 years old, will pay for any hospital services needed up to twenty-one days of treatment.

Maternity care is included after the woman has been a member of the association for one year.

. . .

The Long Beach Hospital's 1943 drive for funds, launched on July 21, netted $12,000 on the first day toward a quota of $50,000. This sum was raised at a $100-a-couple dinner tendered by the institution in the Ocean Crest Hotel. The dinner jointly inaugurated the campaign and paid homage to Mr. and Mrs. Frank Frankel, cofounders of the hospital.

Jack Brantman, chairman of the hospital's ways and means committee, who originated the idea of a fund-raising dinner to initiate the annual campaigns, explained that it had been limited to 120 couples because of space conditions. He declared himself grateful for the cooperation received by the ladies' auxiliary and committee workers.

Brantman introduced Dr. G. S. Reiss, the hospital's president and chief of staff, who remarked dryly that "the hospital has lost money on this affair, but we'd like the same amount of people at next year's affair so we can continue losing money on this basis."

Mrs. Frankel, who with her husband began active work on the formation of a Long Beach Hospital twenty-one years ago, was presented with a huge floral piece. She called attention to the fact that the ladies' auxiliary had raised more than $20,000 and appealed for patriotic-minded women to join the Nurses' Aides to alleviate short-handed staffs.

Mr. Frankel, first president of the institution, declared he was not really the guest of honor, but that the 120 couples who had expended $100 each should be honored. He reviewed the history of the institution, asserting that "the hospital has passed from its transitory stage to a state of being full grown and among the ranking institutions in the country."*

. . .

The hospitals of New York State have had to employ minors because of the employee shortage and because of being fearful of their responsibility under the Compensation Law, Carl P. Wright superintendent of the new Syracuse General Hospital and executive secretary of the State Hospital Association, has announced. He has been in contact with the State Department of Labor and has been advised that such employment is not in violation of the law providing the hospital insists that the minors obtain employment certificates and keeps them on file.

The apprehension of the hospital authorities over the double indemnity penalty is eliminated by acting Industrial Commissioner Murphy's statement that proper employment of minors constitutes no violation of the Labor Law.

In regard to the employment of persons with physical defects, Commissioner Murphy said that there is a special fund set up by the Labor Department designed to defray a portion of the expense when a physically handicapped person is injured. This applies, however, only to these employees, who have previously incurred permanent partial disability from the loss of one hand, arm, foot, leg, or eye. If such an employed person becomes totally disabled, the employer is charged only the expense of the additional disability.*

. . .

The Pulaski Community Hospital Auxiliary held a meeting in July at the home of its chairman, Mrs George Butler, to make arrangements for the continuance of the hospital.

It was reported that $1,750 was received during recent drive for funds.

Mrs. Lenore Watson will manage the institution and another nurse has been employed to aid her.

. . .

In a report to Mayor Fiorello H. La Guardia Hospitals Commissioner Edward M. Bernecke has announced that New York City will establish its own training school for practical nurses to help overcome the shortage of registered professional nurses.

The school, to be known as the Central School for Practical Nursing of the Department of Hospitals opened September 1.

The school is located at the Central Nurses Residence on Welfare Island, but applicants are asked either to write or to apply in person to the Director of Nursing, Department of Hospitals, 125 Worth Street, telephone WOrth 2-4440.

The course will take nine months, with three months devoted to theory and classroom work and six months to practical work in caring for patients under the supervision of professional nurses. At the end of the course, graduates will be eligible to take the State Board examinations for practical nurse license. This license is issued by the State Department of Education and permits holders to apply for positions in hospitals or for work in homes and industry.

While they are studying, the women will live at the Central Nurses Residence and get free maintenance, laundry, uniforms, and $10 a month. There will be no tuition fee.

Candidates must be between the ages of 19 and 50, citizens, and grammar-school graduates. They

must also pass physical, mental, and psychologic tests.

Special funds approved by the budget director for setting up the program for the fiscal periods 1943–1944 and 1944–1945 total approximately $24,000, Dr. Bernecker said.

The outline for the program was prepared for Dr. Bernecker by Mary Ellen Manley, director of the division of nursing of the Department of Hospitals. In her report to Dr. Bernecker she declared that the nursing profession had become increasingly aware that persons with less technical training could take over many of the duties of regular nurses.*

• • •

Dr. Enrique Washington Lithgow, of the Dominican Republic, who for the past two years has been associated with the pathology department of the Mount Sinai Hospital, New York City, left for his native country on August 2 to establish a modern pathologic laboratory and postgraduate educational program in pathology there.

This development is regarded as an example of the possibilities of inter-American cooperation for the advancement of medical science, for with Dr. Lithgow's return the Dominican Republic will acquire one of the most up-to-date pathologic laboratories in the West Indies.

Financed by a fellowship from the Dazian Foundation, Dr. Lithgow has been working at Mount Sinai under the direction of Dr. Paul Klemperer, pathologist to the Hospital, carrying on research and acquainting himself with the most recent advances in this field. Recently Dr. Fernando A. Batlle, Director of the Padre Billini Hospital and President of the Cancer Institute in Trujillo City, invited Dr. Lithgow to return to his native land to make available there the benefits of current advances in pathology. This invitation was supported by the Dominican Government.

Dr. Lithgow will take up research and educational duties at the Padre Billini Hospital, and later at the Cancer Institute, which is scheduled to open in the near future. He is taking back with him up-to-date laboratory equipment, including a complete outfit for making colored photographs of pathologic specimens, one of the recent important improvements in technic, largely developed at the Mount Sinai Hospital. The laboratory was designed, and some of the equipment specially built, in accordance with plans made by Dr. Lithgow with the advice of Dr. Klemperer and other members of the Hospital staff.

Dr. Lithgow is a graduate of the Medical School of the University of Santo Domingo. Before coming to the United States he served for five years as Chief of the Clinical Pathological Laboratory of the Padre Billini Hospital and four other medical institutions.

The fellowship under which Dr. Lithgow has worked at the Mount Sinai Hospital is one of several granted annually by the Dazian Foundation, under the presidency of Dr. Emanuel Libman, consulting physician to the Hospital. They are awarded to selected younger physicians of Central and South American countries for postgraduate study and research in the United States.

• • • •

As a measure to relieve the domestic shortage, nurses must now be cleared by the Procurement and Assignment Service of the War Manpower Commission as nonessential in civilian service before they can be recruited for the armed forces.

The Nursing Supply and Distribution Unit of the War Manpower Commission has been made the Nursing Division of the Commission's Procurement and Assignment Service, Paul V. McNutt, Chairman of the Commission, stated.

"The objectives of the Nursing Division are the same as those of the divisions of the Procurement and Assignment Service now dealing with the dentist, veterinary, physician, and sanitary engineer for their professions," Mr. McNutt explained.

"They involve the recruitment of sufficient nurses to meet the needs of the armed forces and the provision of minimum adequate nursing care for the civilian population, nonmilitary governmental agencies, and industry."

Recruiting of graduate nurses for the armed services will continue to be handled by the Red Cross and recruiting of cadet nurses by the Office of Public Health.*



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Books

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RECEIVED

Pictorial Handbook of Fracture Treatment. By Edward L. Compere, M.D., and Sam W. Banks, M.D. Octavo of 351 pages, illustrated. Chicago, Year Book Publishers, Inc , 1943. Cloth, $4 25.

Physiological Principles in Treatment. By Sir Walter Langdon-Brown and Reginald Hilton. Eighth edition. Octavo of 323 pages. Baltimore, Williams & Wilkins Co , 1943. Cloth, $3.50.

Human Neuroanatomy. By Oliver S. Strong and Adolph Elwyn. Octavo of 417 pages, illustrated. Baltimore, Williams & Wilkins Co , 1943. Cloth, $6.00.

Managing Your Mind. By S. H. Kraines, M.D., and E. S. Thetford. Octavo of 374 pages. New York, Macmillan Co , 1943. Cloth, $2.75.

An Atlas of the Basal Ganglia, Brain Stem and Spinal Cord. By Henry Alsop Riley, M.D. Octavo of 708 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $13.50.

What to Do Till the Doctor Comes. By Donald B. Armstrong, M D. Sextodecimo of 354 pages, illustrated. New York, Simon & Schuster, Inc , 1943. Cloth, $1.00.

Surgical Care. A Handbook of Pre- and Post-Operative Treatment. By R W. Raven. Duodecimo of 271 pages, illustrated. Baltimore, Williams & Wilkins Co , 1942.

Textbook of Medicine. By various authors. Edited by J. J. Conybeare, D.M.Oxon , Sixth edition. Octavo of 1,147 pages. Baltimore, Williams & Wilkins Co , 1942.

Air-Borne Infection. Some Observations on Its Decline. By Dwight O'Hara, M D. Octavo of 114 pages, illustrated. New York, Commonwealth Fund, 1943. Cloth, $1 50.

Allergy. By Erich Urbach, M D., with the collaboration of Philip M. Gottlieb, M.D. Octavo of 1,073 pages, illustrated. New York, Grune & Stratton, 1943. Cloth, $12.

Methods of Treatment. By Logan Clendening, M.D., and Edward H. Hashinger, M D Eighth edition. Octavo of 1,033 pages, illustrated. St Louis, C V. Mosby Co., 1943. Cloth, $10.

A Synopsis of Clinical Syphilis. By James Kirby Howles, M.D. Duodecimo of 671 pages, illustrated. St Louis, C. V. Mosby Co , 1943. Cloth, $6 00

Medical Malpractice. By Louis J. Regan, M D, LL B. Octavo of 256 pages St Louis, C V Mosby Co., 1943. Cloth, $5 00

History of Surgery. By Richard A Leonardo, M.D. Octavo of 504 pages, illustrated New York, Froben Press, 1943. Cloth, $7.50.

Rehabilitation of the War Injured. Edited William Brown Doherty, M.D , and Dagobert Runes. Octavo of 684 pages, illustrated N York, Philosophical Library, 1943. Cloth, $10

Clinical Parasitology. By Charles F. Craig, M and Ernest C Faust, M.D Third edition, th oughly revised. Octavo of 767 pages, illustrat with 284 engravings and 4 colored plates Phi delphia, Lea & Febiger, 1943. Cloth, $9 00

REVIEWED

Primer of Allergy. Second edition By Warren T. Vaughan, M D. Duodecimo of 176 pages, illustrated. St Louis, C V Mosby Co., 1943. Cloth, $1 75.

This second edition is a marked improvement over the first edition of this book. The facts are practically the same but in the rewriting a sense of humor has been introduced, which makes the text much more interesting to the reader. The reasoning is clear and is much enhanced by a question-and-answer section following each chapter, which is so vital to driving home the main argument

The whole tone of the book is an appeal for the cooperation of the patient with the physician in the treatment of his malady

If every sufferer from allergy possessed this book it would be a great aid to his doctor in helping to solve his problem Any physician reading it will be benefited by having the subject matter brought to him in an interesting light.

THOMAS B. WOOD

Outline of Roentgen Diagnosis. Second edition By Leo G. Rigler, M.D. Octavo of 196 pages, 254 illustrations shown in 227 figures, drawings, and reproductions of roentgenograms. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $6 50.

This book is the upshot of a teacher's notes on the subject of roentgen diagnosis. Its 196 pages a packed with information. Appended are 227 i structive illustrations with legends.

To the medical student the book conveys a fair good idea of what roentgen procedures can accor plish, although a book of this size cannot supp more than a synopsis of the vast subject For mo complete information one will have to turn to t books recommended by the author for this purpos These books are well chosen. The list shoul however—in the opinion of the reviewer—inclu Geschickter and Copeland's *Tumors of Bone*

Anyone faced with the task of preparing a lectu course on roentgen diagnosis will find the author outline very helpful.

S. W. WESTING

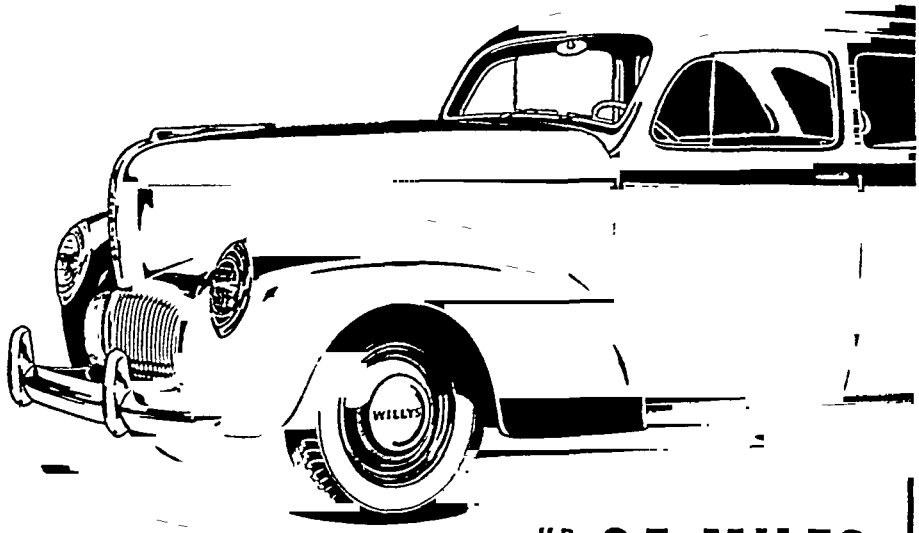
Religion and Health. By Seward Hiltner. Du decimo of 292 pages. New York, Macmillan Co 1943. Cloth, $2 50.

For a long time the "art of medicine" was shove into the background (somewhat disgraced) by th science of medicine. But of late old-timers ha seen the former "sneaking" back in the guise o psychosomatic medicine, mental hygiene, etc taking into account the whole personality and it needs in relation to health.

This book, written by the Executive Secretary o

[Continued on page 1780]

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[Continued from page 1778]

the Commission on Religion and Health, Federal Council of the Churches of Christ in America, deals ably with the many aspects of religion's relationship to health. The author is sound in his attitude toward the groups which seem concerned to apply religion *only* to curing illnesses and toward the physician as the central figure in the prevention and treatment of sickness.

In the streamlining of a reawakened art that is now in progress one may hope to see many reincarnations of the Weir Mitchells of the past appear once again upon the medical scene.

ARTHUR C. JACOBSON

Clinical Roentgenology of the Cardiovascular System. By Hugo Roesler, M.D. Second edition. Quarto of 480 pages, illustrated. Springfield, Ill., Charles C Thomas, 1943. Cloth, $7.50.

Dr. Roesler has written the outstanding book on roentgenology of the cardiovascular system because he himself is one of the leading authorities in this field.

The second edition has been brought up to date with the inclusion of all of the important recent additions to knowledge. The chapter on congenital cardiovascular malformations is one of the best in the book. The bibliographies at the end of each chapter are unusually complete and in themselves make the book a valuable one to possess.

EDWIN P. MAYNARD, JR.

Chemotherapy of Gonococcic Infections. By Russell D. Herrold, M.D. Octavo of 137 pages. St. Louis, C. V. Mosby Co., 1943. Cloth, $3.00.

This new treatise on the sulfa therapy of gonococcal infections in the male and female is very concise and well written. Practical clinical considerations are a feature of the work. The author's experience with sulfathiazole alone is based upon a study of over 800 patients. Toxic drug reactions have received due consideration.

A brief outline of the evolution of sulfa drug therapy is given.

Typical case histories of those refractory to chemotherapy are included. These present a special problem for consultation, selected study, and treatment. All references are listed at the end of the book.

The author deserves commendation for his excellent contribution. There is need for more works of this type to guide the practitioner who today so frequently is prescribing sulfa compounds for gonorrhea.

AUGUSTUS HARRIS

Convulsive Seizures. By Tracy J. Putnam, M.D. Duodecimo of 168 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $2.00.

Epileptics and their relatives will be grateful for the information, common sense, and air of hopefulness contained in this book.

Sufferers from this illness have long been ostracized by the public and neglected by the physician but the book will help dispel both of these conditions. It is written by an authority and the material ably presented.

Doctors will do a great service in recommending the book to patients who have seizures. There is a definite need for such a book.

JOSEPH L. ABRAMSON

Medico-Legal Blood Group Determination. By David Harley, M.D. Octavo of 119 pages, illustrated. London, Heinemann, 1943. [New York, Grune & Stratton, Inc.]

This small book will be of interest to those having occasion to perform blood grouping tests for forensic purposes.

After a terse but accurate review of the theory of the blood groups and MN-types, the principles of the application of the tests in disputed parentage and for examining blood and other stains are presented. About half of the book is devoted to the discussion of the legal history of the tests in England and the author's experiences in 65 cases of disputed parentage and 14 homicides. On the whole the book is well done, but one misses the description of certain refinements in technic, such as the valuable cover-glass method of testing blood crusts for their agglutinin content.

A. S. WIENER

Essentials of Industrial Health. By C. O. Sappington, M.D. Octavo of 626 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $6.50.

This comprehensive volume is divided into three parts. In Part 1, there is a discussion of industrial health administration. Part 2 is devoted to industrial hygiene and toxicology, and Part 3 to industrial medicine and traumatic surgery. The author has had extensive experience in all phases of industrial medicine and has presented an excellent review of the subject. The discussion of health services, the economic value of such services, the classification of industrial health exposures, the methods of conducting a plant survey, the discussion of plant sanitation, the personnel relation aspects of industrial health as well as the importance of occupational diseases will be found to be stimulating and of value to any physician interested in the subject. An appendix is included which deals with the application of principles outlined in the book. There is also a well-selected bibliography.

IRVING GRAY

First Aid, Surgical and Medical. By Warren H. Cole, M.D., and Lt. Col. Charles B. Puestow, M.C., M.D. Second edition. Octavo of 351 pages, illustrated. New York, D. Appleton-Century Co., 1943. Cloth, $3.00.

This book is timely and complete with the latest knowledge of the subjects presented by various contributing authors.

It differs from most first aid manuals in that it covers the subjects more fully from a scientific angle. Although the authors intended this text to be for medical students, medical personnel of the armed and public health service, nurses, dentists, pharmacists, and others with sound biologic background, the reviewer feels that the facts are too advanced and that it is therefore more suited as a refresher text for physicians.

The book very clearly tells one "what to do and what not to do," in both surgical (civil and military) and medical emergencies.

LOUIS BERGER

Methods for Diagnostic Bacteriology. By Isabelle G. Schaub, A.B., and M. Kathleen Foley, A.B. Second edition. Octavo of 430 pages. St. Louis, C. V. Mosby Co., 1943. Cloth, $3.50.

[Continued on page 1785]

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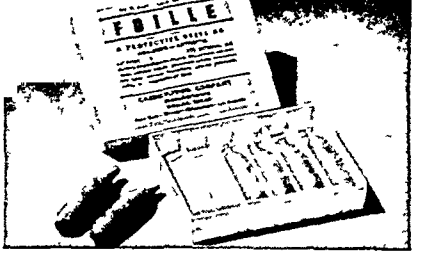
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*COPE, O. The Treatment of the Surface Burns, Annals of Surgery, 117 885-893, (June) 1943

**HAMILTON, J. L. A Comparative Study of Local Burn Treatments, Amer. Jl. Surg., 58 350-364, (Dec.) 1942



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NEW YORK CHEST PHYSICIANS TO MEET

The scientific session of the New York State Chapter of The American College Chest Physicians, will be held at the Hotel Biltmore in New York City on October 15. The program follows:

Morning Session

Dr. Arthur Q. Penta, Schenectady, N.Y., *Chairman*

9:30 A.M.—Registration of members and guests

9:45 A.M.—"A Simple Broncho Pulmonary Nomenclature and Its Clinical Application"
Dr. C. L. Jackson, Professor, Broncho-Esophagology, Temple University School of Medicine, Philadelphia, Pa.

10:45 A.M.—"Experiences with Pulmonary Resections in Pulmonary Tuberculosis"
Dr. Richard H. Overholt, Department of Thoracic Surgery, Deaconess Hospital, Boston.

12:15 P.M.—Luncheon
Guest speaker
Dr. J. Winthrop Peabody, President, American College Chest Physicians, Washington, D.C.

Afternoon Session

Dr. James H. Donnelly, Buffalo, N.Y., *Chairman*

2:00 P.M.—"Rehabilitation of Military Personnel as Carried Out in the Army"
Brigadier General S. U. Marietta, U.S.M.C., Commanding General Army Medical Center, Walter Reed General Hospital, Washington, D.C.

3:00 P.M.—"Idiopathic Spontaneous Pneumothorax, Incidence and Pathogenesis"
Dr. George G. Ornstein, Associate Professor of Medicine, New York Medical College and Flower Hospital, Associate Clinical Professor of Medicine, New York Post-Graduate Medical School, Columbia University

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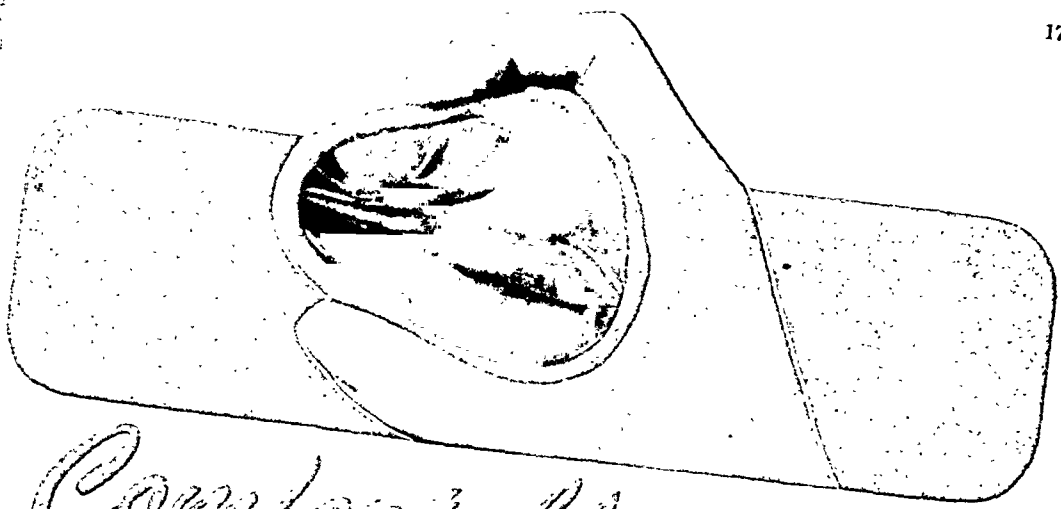
Douglas Gibbons, president of Douglas Gibbons & Co., will serve as chairman of the Professions and Special Services Section, Commerce and Industry Division, of the New York War Finance Committee, it was announced by William E. Cotter, director of the division.

Nineteen branches have been set up in this Section. During the Third War Loan Campaign, which began September 9, Mr. Gibbons will coordinate and direct the activities of these branches.

"No man, whether he be professional or business, whether he be engaged in arts or sciences or industry, can shirk his duty during the coming drive," Mr. Gibbons declared. "If we are to achieve the threefold purpose of the Third War Loan—to provide the funds for prosecuting our war effort, to obtain 100 per cent participation in the purchase of extra bonds and to provide a backlog against post-war inflation— every man must roll up his sleeves, work, and dig down into his own pockets to give."

The Professions and Special Services Section will comprise accountants, lawyers, trade associations, physicians and surgeons, dentists, educators and librarians, opticians and dealers in optical goods, dealers in medical and dental supplies, public service bureaus, philanthropic and welfare services, welfare agencies, employment agencies, museums and art galleries, morticians and cemeteries, and domestic services.

Mr. Gibbons has a long and notable record of philanthropic and social services. He is a member of the executive committee of the United Hospital Fund and the Citizens Welfare Committee. Since 1930, he has been vice-chairman and director of the New York Chapter of the American Red Cross.



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KITCHEN CONTRIBUTIONS TO WAR

In addition to waste fats and many other salvage articles including tin cans that come out of the home kitchen to help defeat the Axis, the housewife's workshop has sacrificed a number of things familiar to chemists.

Mary Madison informed her interested readers in a recent issue of the *New York Times Magazine* that the A B C's of the laboratory chemists are the stock in trade of every housewife. "Out of his mysterious-sounding formulas and his seething test tubes come the 'chemicals' she knows familiarly as soap and shellac and kitchenware," remarked this writer. "And never was the relation between the scientists and the lady of the house so striking as it is now—for the chemicals that have gone to war, according to a recent listing by the WPB, have been recruited largely from the American kitchen."

A few mentioned are—arsenic, casein, cellulose, phosphorus, shellac, candles and vinyl chloride resin. Arsenic, of course, has generally been the source of jokes referring to its use as an exterminator put in foods, but in this case its reference concerns its use to enhance the crystal clarity of glassware. Casein, in the kitchen, is ordinarily found in insulating materials and prefabricated wallboards. Cellulose plastic is now forbidden for sink stoppers. Only 60 per cent of the phosphorus needed has been granted soap makers, but there are other less valued chemicals available for detergents. Shellac has been denied for use as a furniture and floor finish, as has certain kinds of wax for candles.

Among many less familiar things there is vinyl chloride resin which plays an important part in the peacetime home as a coating to protect fabric garment bags from dust and damp and for baby crib sheets. Only 25 per cent of this substance is now granted for civilian use.

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[Continued from page 1780]

This is the second edition of a very practical work written for the purpose of describing methods for immediate use in the biologic and autopsy laboratories, especially for the identification of bacteria.

It should be useful to both physicians and technicians whose work throws them in frequent contact with material on which bacteriologic identification is required. Therefore it could serve as a handy manual in actual bacteriologic laboratory practice.

MAX LEDERER

The 1942 Year Book of Industrial and Orthopedic Surgery. Edited by Charles F. Painter, M.D. Duodecimo of 424 pages, illustrated. Chicago, Year Book Publishers, 1942. Cloth, $3.00.

The 1942 Year Book of Industrial and Orthopedic Surgery is fully up to the standard set by this series of the Year Book Publishers, Chicago. As the field of medical literature covered is so large, it is impossible in a brief review to go into detail. The volume is, however, a valuable contribution to the surgical work of the Army and Navy.

J. C. RUSHMORE

The Medical Clinics of North America. Vol. 27, No. 2, March, 1943. Octavo Illustrated. Philadelphia, W. B. Saunders Co., 1943. Published bimonthly (six numbers a year). Cloth, $16 net; paper, $12 net.

This issue is devoted entirely to a symposium on nutrition, with articles contributed by experts from all America. The importance of nutritional problems in wartime is emphasized. Present-day emphasis on vitamin deficiency and their prevention is reiterated.

All of the articles are written from the viewpoint of the general practitioner and none is exhaustive or comprehensive. The papers entitled "Obesity" by Newburgh and Johnston and "Nutrition As It Affects Military Personnel" by Howe are especially interesting and well written.

MILTON PLOTZ

Transurethral Prostatectomy. By Reed M. Nesbit, M.D. Octavo of 192 pages, illustrated. Springfield, Ill., Charles C Thomas, 1943. Cloth, $7.50.

Dr. Nesbit has presented a valuable, clear, concise, and complete clinical work based upon a wide experience in the urological department of the University of Michigan. He has clearly demonstrated his success in the so-called complete prostatectomy by resection procedure.

The work is fully illustrated, including detailed pictures by the well-known Mr. William P. Didusch. A chapter on the arterial distribution within the prostate, by Dr. Rubin H. Flocks, is included. The essentials of the historic development of transurethral resection are also given. A rather extensive bibliography is appended.

The book is a valuable reference work for all physicians interested in resection operations and for all urologists as well.

The author has wisely divided the field of consideration into three zones: intravesical, subvesical, and apical.

AUGUSTUS HARRIS

Family Treasures. By David D. Whitney, Ph.D. Octavo of 299 pages, illustrated. Lancaster, Pa., Jacques Cattell Press, 1942. Cloth, $3.50.

This is a treatise on human heredity, mainly limited to studies of structure and physiology.

[Continued on page 1786]

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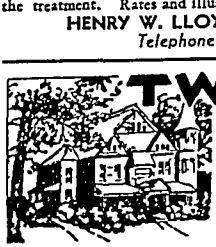
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[Continued from page 1785]

It is essentially objective. The physiologic section is vividly portrayed by a collection of photographs emphasizing the transmission of similar physical characteristics in several generations in various parts of the body. The approach is a novel one and is extremely interesting.

A M. RABINER

The Physiological Basis of Medical Practice. By Charles Herbert Best, M.D., and Norman Burke Taylor, M.D. Third edition Octavo of 1942 pages, illustrated Baltimore, Williams & Wilkins Co , 1943 Cloth, $10.

A review of a volume of nearly 2,000 pages can at best mention its virtues in general terms only A third edition since 1936 is evidence of the book's meeting a popular demand as well as being up to date

One does not hesitate to say that the student or practitioner who wishes to become a good doctor must familiarize himself with its contents The task is not simple, but it can be done if ten to fifteen minutes a day are set aside for it The cost is infinitesimal compared to the knowledge and satisfaction to be derived from the book. It is a "must" book for every doctor's library.

S. R. BIATTEIS

Treatment of Fractures. By Guy A Caldwell, M.D Octavo of 303 pages, illustrated New York, Paul B. Hoeber, Inc , 1943 Cloth, $5 00

This outline, captioned *Treatment of Fractures,* is another attempt to bring order to the mind of the student and practitioner on the treatment of fractures. The author makes no claim for originality, but he has arranged his subject-matter in such a way as to stress those matters which are of greatest educational value

The student or the practitioner who uses this book will not go far astray in the problems of his own practice which are covered by the text

ROBERT F. BARBER

Brucellosis in Man and Animals. By I Forest Huddleson, D.V.M. Revised edition Octavo of 379 pages, illustrated. New York, Commonwealth Fund, 1943 Cloth, $3 50.

This book is an enlarged edition of Dr. Huddleson's original publication on the laboratory aspects of brucellosis. In the present treatise the disease is discussed in its varied clinical manifestations and epidemiologic aspects The book is divided into seven chapters with an appendix of case reports, a bibliography, and an index.

The place in epidemiology of contact infection receives proper emphasis, and attention is called to the high incidence of Brucella infection among packing-plant employees and farm workers, where contact with infected animals or their carcasses is so apt to occur. The diagnostic value of the brucellin skin test as well as the opsonocytophagic test and the blood agglutination reactions is clearly given The importance of Brucella vaccine in therapy is stressed

Dr. Huddleson is eminently qualified to discuss this unusual disease, on the basis of the twenty years that he has devoted to its study.

The physician, the veterinarian, and the public health and laboratory worker will welcome the information this book contains

JOSEPH C. REGAN

[Continued on page 1788]

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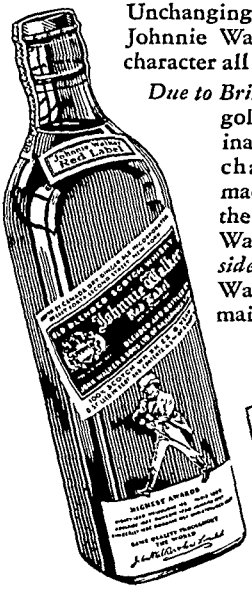
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[Continued from page 1786]

Physiology in Aviation. By Chalmers L. Gemmill, M.D. Octavo of 129 pages, illustrated. Springfield, Ill., Charles C Thomas, 1943. Cloth $2.00.

This is a very brief book on a subject of tremendous scope. It is supposedly written for the medical reader undergoing training in aviation medicine.

When one considers the amount of information published in this field, it is not surprising that the book is far from adequate since it attempts to cover not only the fundamentals of aviation but also the physiology of respiration and circulation in the all too short a space of 129 pages.

G. B. RAY

Operating Room Technique. By Edythe L. Alexander, R.N. Octavo of 392 pages, illustrated. St. Louis, C. V. Mosby Company, 1943. Cloth, $3.75.

This monograph is an interesting text for operating-room nurses.

Miss Alexander is the supervisor of the operating rooms of the Roosevelt Hospital in New York City. The book covers all the phases of surgical technic pertaining to the operating room. The description of numerous operations, with positions and instruments that are used, is most interesting and instructive, not alone for operating room nurses but also for the surgeon, who not always appreciates how and why the proper instrument is placed in his extended hand during an operation. There is a typographical error on page 35, referring to the use of rubber gloves by Dr. Halstead in 1852. It was in 1890. Halstead was born on September 23, 1852.

GAETANO DE YOANNA

Urology in General Practice. By Nelse F. Ockerblad, M.D., and Hjalmar E. Carlson, M.D. Octavo of 383 pages, illustrated. Chicago, Year Book Publishers, Inc., 1943. Cloth, $4.00.

The reviewer is greatly impressed with this work. In fact, it is the finest book of its type that has come to our attention. The text is clear and well-written, and the illustrations are numerous.

The contents also have a distinct air of originality. The authors are to be highly complimented in providing a condensed and complete work that will prove useful and valuable not only to the student and practitioner but also to the resident urologist in training.

It is worthy of note that very little space is given to the consideration of gonorrhea, a change in emphasis that is logically the result of the new sulfonamide therapy.

AUGUSTUS HARRIS

An Introduction to Group Therapy. By S. R. Slavson. Octavo of 352 pages. New York, Commonwealth Fund, 1943. Cloth, $2.00.

This book deals with group therapy as employed at the Jewish Board of Guardians since 1934.

Group therapy has been utilized as one of the treatment methods, either supplementary to individual psychotherapy or as an exclusive treatment method.

This volume is intended to formulate some of the basic principles of interpersonal therapy and to outline the practice of group therapy. Five individual cases are described. There are several outlines for referral summary, progress reports, integration conferences, and follow-up study.

The book is of particular value to physicians and others who are dealing with problem children.

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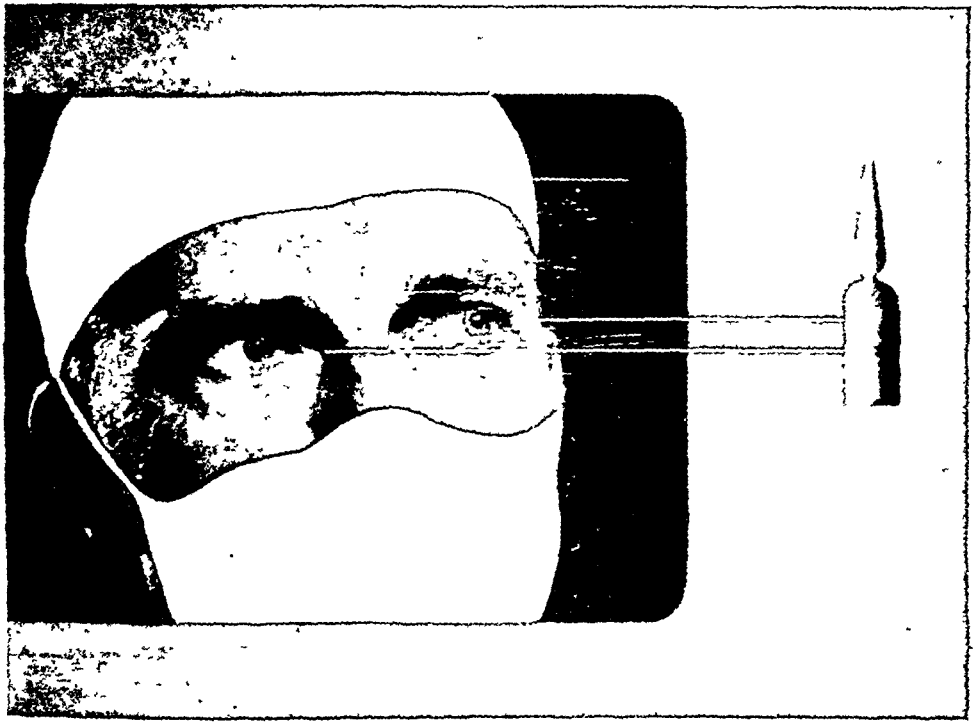
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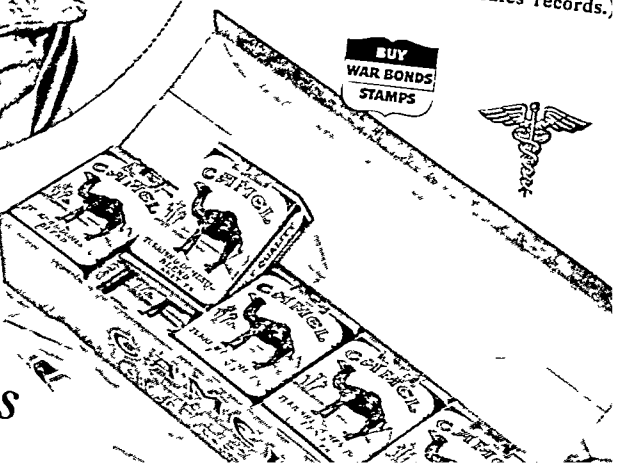
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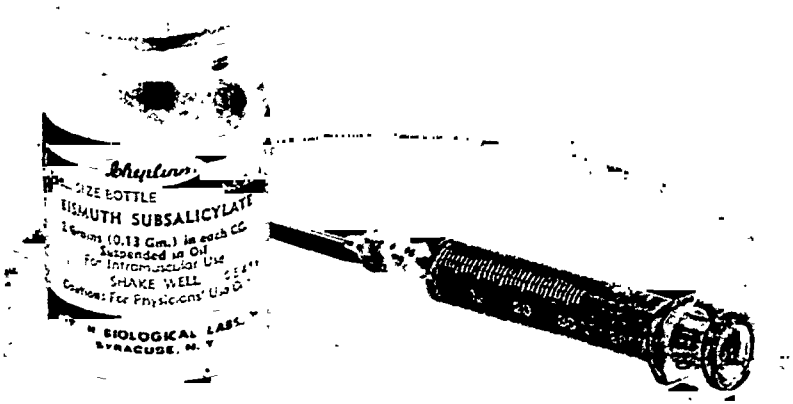
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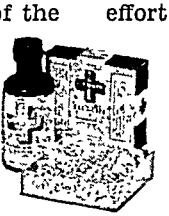
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THE DIAGNOSIS OF PANCREATIC DISEASE

JOSEPH H. PRATT, M.D., Boston

OVER seventy years ago, John Richard Wardell[1] wrote in Reynolds' *System of Medicine* that "no symptoms are pathognomonic of pancreatic disease; an assemblage of symptoms indicates the probability of its lesion." In 1920, Garrod[2] took this sentence as a text for his Schorstein Lecture on the diagnosis of disease of the pancreas and proclaimed its validity. In spite of the great advance made in the twenty-three years that have passed since Garrod wrote on this subject, it is still true that no symptoms or physical signs have been discovered that are pathognomonic of either acute or chronic pancreatic disease. In many organs whose physiologic role is fundamental, there are such important factors of safety, as Meltzer[3] pointed out years ago, that extensive damage may occur without any clinical evidence of its existence. This is true of the pancreas. Coope[4] says, "The physician who overlooks this fact may therefore be surprised and baffled to find how often even extensive pancreatic disease, discovered for the first time at operation or autopsy, has eluded his keenest search." The advance in diagnosis is due to aid furnished by the chemical laboratory. There are three tests of great value—namely, the diastase test, the serum lipase test, and the secretin test. These will be discussed later.

In the two chief types of acute pancreatic disease, acute edema of the pancreas and acute pancreatic necrosis (acute pancreatitis) the clinical picture is so varied and so obscure that a definite diagnosis based on symptoms and physical signs is rarely, if ever, possible. Acute edema of the pancreas cannot be distinguished clinically from biliary colic, and acute pancreatic necrosis simulates other forms of acute abdominal disease so closely that many able physicians and surgeons with extensive experience admit that they have never made the diagnosis correctly before operation. Fortunately, by means of the diastase test acute pancreatic disease can now be recognized at its onset in practically all cases. In the recent literature, I have read of no case in which the diastase test of the blood serum or urine was negative if the test was performed in the first twenty-four hours of the disease. It is often negative after forty-eight hours and sometimes even after twenty-four hours, but the increase of serum lipase as determined by the Cherry-Crandall[5] technic usually gives positive results for a considerably longer period. Comfort[6] says values for lipase remain elevated for ten to fourteen days, but in a mild case of acute pancreatic disease, I have observed the lipase value fall to normal in four days.

There is widespread ignorance of the most characteristic symptoms of carcinoma of the pancreas, and hence the diagnosis is needlessly missed in many cases. Berk,[7] in a comprehensive study of the diagnostic symptoms of this disease, published in 1941, wrote as follows: "A poll was taken among 120 recent medically trained persons representing 34 medical schools on the question of their impressions of the outstanding diagnostic criterion of carcinoma of the pancreas. Jaundice was selected by 92.5 per cent as the outstanding and commonest feature of the disease, and nearly half of this number specified further that the jaundice was painless. Only 2.5 per cent felt that pain ranked as the predominant characteristic." Only one of the 120 men recently trained in clinical medicine thought that loss of weight had the chief diagnostic significance.

Now let us examine the facts. Berk, in an analysis of nearly 600 cases collected from the literature, together with 34 of his own, found that loss of weight occurred in 87.4 per cent of the cases. The average loss of weight was 26.4 pounds. In a series of 1,181 cases, pain occurred at some time in the course of the disease in 76.4 per cent and was the chief symptom of which the patient complained in 48.5 per cent. No less than 31 per cent of the patients did not develop jaundice throughout the course of the disease, and it was the initial symptom in only 22 per cent. The statistics that Berk collected are based in part on cases in which the diagnosis of carcinoma of the pancreas was made by surgeons at the operation table. For example, in 25 of Berk's own collection of 34 cases collected from the surgical records of the Graduate Hospital of the University of Pennsylvania, the diagnosis was based on findings at laparotomy, and in 18 of Futcher's[8] 31 cases observed at the Johns Hopkins Hospital, and in 17 of Kiefer's[9] 33 cases from Peter Bent Brigham Hospital the diagnosis was confirmed by operation alone. More trustworthy conclusions are obtained by a study limited to the cases that came to autopsy. There are two reasons for this: first, there is known to be a considerable percentage of the cases of carcinoma of the pancreas that is not

Read by invitation at the Joint Meeting of the Sections on Medicine and Surgery, Annual Meeting of the Medical Society of the State of New York, Buffalo, May 5, 1943. See discussion by Dr. Noehren, page 1859.

recognized during life, and exclusion of these might introduce a considerable statistical error. Second, accurate observations at operation of pathologic conditions in the region of the pancreas cannot often be made. It is sometimes impossible to recognize a small carcinoma even at autopsy until many transverse sections are made through the pancreas, and it may be difficult to distinguish at operation between a scirrhus carcinoma and chronic interstitial pancreatitis. Even a biopsy may give misleading results, as areas of chronic pancreatitis, probably resulting from occlusion of small branches of the pancreatic duct, may form a zone outside the cancer and a small piece of tissue removed at the time of operation may reveal only an increase in connective tissue. This occurred in one of the cases in my series. The surgeon suspected carcinoma but the pathologic report on tissue removed at the operation was chronic pancreatitis. The patient died within a year, and the autopsy revealed a carcinoma of the pancreas.

The most recent report based on autopsy material alone is that of Engleman.[10] He collected 53 cases of carcinoma of the pancreas from the records of three San Francisco Hospitals. He found that 24 patients, or 45 per cent, never developed jaundice and that not one of these cases had been diagnosed correctly during life. To learn more about the clinical features and especially to study the cases that do not become jaundiced, I have examined the autopsy and medical records of the Peter Bent Brigham Hospital through the courtesy of Dr. S. Burt Wolbach, pathologist, and Dr. George W. Thorn, physician-in-chief of the hospital. The records of 34 cases that came to autopsy from 1913 to 1937 have been analyzed, and of these, 12, or 38 per cent, did not develop jaundice. Ten patients had jaundice only within the last six weeks of life. Hence, 22, or 64.7 per cent of the Brigham series either did not have jaundice at all or had it only shortly before death. Only 6 patients, or 18 per cent, had painless jaundice, while three times as many had painful jaundice. Eighty-nine per cent showed marked loss of weight and pain was the chief symptom in 46 per cent.

The most common initial symptom of which the patient complained was abdominal pain. This was present in 39 per cent of the Brigham cases, juandice in 26 per cent, and weakness and loss of weight each in 13 per cent. Loss of weight, disregarded or unnoticed, often preceded the pain or juandice, which were the symptoms that caused the patients to seek medical aid. One patient had lost 50 pounds over a period of four months but had been jaundiced only two weeks at the time of admission to the hospital. Another patient lost 84 pounds. Nausea and vomiting occurred in nearly half the cases. Constipation was the rule. From this the conclusion is justified that in most cases of cancer of the pancreas enough pancreatic juice enters the intestine to digest the fat and protein of the food. But as the disease progresses, more and more pancreatic juice is excluded by gradual occlusion of the pancreatic ducts and their branches. When, as a result, defective pancreatic digestion occurs, the stools yield information of great diagnostic value. Rarely, even in the leading hospital clinics, are the stools adequately examined. As data have been lacking, no statistical study deals adequately with the aid that may be furnished by the examination of the stools. When pancreatic digestion is definitely impaired, the stools become bulky, more numerous, and light-colored. In some cases, the color is almost white, regardless of the presence of bile in normal quantity. On the standard Schmidt diet, the weight of the feces excreted in health does not average over 18 Gm. a day, when dried, while in my cases with pancreatic juice largely excluded from the intestines, the weight of the dried stools was 100 Gm. or more a day, an increase of at least five times the normal amount. In the recognition of pancreatic insufficiency, more important than an excess of fat is the presence of undigested muscle fibers which are easily recognized under the microscope by their square ends, sharp angles, and well-preserved striations. Their presence in the feces in considerable number means pancreatic disease in the vast majority of cases. In some cases of diarrhea, the movement of food through the small intestine may be so rapid that digestion of muscle fiber does not take place. This is rare. Personally, I have observed only one case of nonpancreatic diarrhea in which many undigested muscle fibers were present in the stools. It was seventy-nine years ago that Fles,[11] a Dutch physician, wrote that he found large numbers of undigested muscle fibers in a case of extreme atrophy of the pancreas. Friedreich[12] cited this observation in his monograph on diseases of the pancreas, which was published fourteen years later in von Ziemssen's widely circulated system of medicine, and stated that it "is worthy of every consideration and may perhaps prove of diagnostic value." Very little attention was paid to Friedreich's suggestion, for Fitz,[13] writing nearly thirty years later in 1903, was able to find in the literature only 8 cases of proved pancreatic disease in which the stools had been carefully examined microscopically. Although Fitz himself held that "little clinical evidence has been offered that this sign is likely to prove of especial value," examination of the table that he constructed shows that while 3 of

the 8 patients did not pass fatty stools, undigested muscle fibers were present in every case. Repeatedly during the past forty years, I have observed the presence of undigested muscle fibers in the feces both of patients and of dogs whose pancreatic ducts were occluded. To the pathologic condition characterized by the presence of many muscle fibers in the stools, Ehrmann[14] has given the name "creatorrhea." I wish to emphasize the great diagnostic value of this simple examination which has suffered such unmerited neglect. By means of it, the fatty stools so characteristic of sprue can be easily distinguished from those of pancreatic disease, for in the sprue the muscle fibers are well digested, as they are in the fatty stools of obstructive jaundice when the pancreas is not involved.

In addition to the microscopic examination of the stools, if laboratory facilities are available, the quantity of nitrogen in the dried feces should be determined in cases of suspected chronic pancreatic disease. In an earlier paper,[15] I presented absorption studies in cases of cancer of the pancreas which showed definitely that the weight of the feces in cases of obstruction of the pancreatic ducts was greater than in any other disease. I stated that our observations showed that "faulty absorption of nitrogen is of greater value in the recognition of pancreatic disease than is the faulty absorption of fat. In the other forms of steatorrhea studied, the loss of fat to the body is not associated with so marked a loss of nitrogen." That the increase in the amount of nitrogen in the feces should be of great help in the recognition of pancreatic disease was first clearly recognized by Thaysen,[16] who concluded from his studies that a daily excretion of more than 3 Gm. of nitrogen in the feces was good evidence of pancreatic disease. I think this statement is correct. In 1912, I[17] published the data of a case of total obstruction of the pancreatic duct studied by Morrison and myself. We made a three-day experiment with the patient on the Schmidt diet. The weight of the dried feces was 438 Gm., and the percentage of nitrogen was 5.8 per cent, or 22.5 Gm. Hence, the daily excretion of nitrogen was 8.4 Gm.

In slight obstruction of the pancreatic ducts, the amount of nitrogen in the feces may be within normal limits, and yet the secretin test may reveal disturbance of pancreatic secretion. For example, the feces of Mrs. A. B., a patient with cancer of the pancreas, contained only 1.9 Gm. of nitrogen when she was on the Schmidt test diet, but the duodenal secretion after intravenous injection of secretin was abnormally low in sodium bicarbonate and enzymes. In another case, increase of serum lipase and diastase indicated pancreatic disturbance, which was confirmed by operation, but there were no undigested muscle fibers seen in the feces when the patient was on the Schmidt diet and the daily quantity of nitrogen eliminated in the stools was only 1.1 Gm. These 2 cases demonstrate that mild disturbances of pancreatic secretion can be recognized by the secretin and serum lipase tests when the nitrogen absorption is normal.

The presence of occult blood in repeated examinations of the stools is common in cancer of the pancreas and has frequently led to errors in diagnosis. In a series of 424 cases collected by Berk,[7] blood was found in the stools in 27.5 per cent and in 37 per cent of Kiefer's cases.[9] In the absence of jaundice or any other explanation, gastrointestinal bleeding was present in 7 of Engleman's 53 cases, or 13.2 per cent. Engleman[10] points out that this sign was invariably misleading as "tentative diagnoses in these cases were limited exclusively to pathologic conditions in the gastrointestinal tract, despite negative x-ray findings."

The chief clinical features of carcinoma of the pancreas can be briefly stated. It is a disease of old men, the average age in the Brigham series being 57 years, with 85 per cent men. It is a disease of short duration (present series five and four-tenths months, Engleman's six months, Berk's collection seven and one-tenth months). Great loss of weight (81 per cent in our series) and pain (59 per cent) are the chief symptoms. The pain is not characteristic. It may be dull or sharp, continuous or intermittent, and although usually located in the epigastrium, may be not only in any part of the abdomen—even in the chest. Pain across the back may be a prominent feature. The pain bears no relation to meals and is often increased when the patient lies down. That the combination of abdominal pain and progressive loss of weight in the absence of other symptoms should suggest cancer of the pancreas is not new. Pemberton[18] wrote over a hundred years ago that "in all cases of diseased pancreas which have fallen under my notice after death, there was always during life more or less deep-seated pain in the region of the stomach and more or less sickness, with emaciation."

Inasmuch as loss of weight and chronic abdominal pain of indefinite character are often the only early symptoms of cancer of the pancreas, it is not surprising that when the physical and gastrointestinal examinations reveal nothing abnormal, the mistaken diagnosis of anxiety neurosis or intestinal neurosis is often made. This is more excusable when symptoms of psychic origin are present. It was Yaskin[19] who first called attention to nervous symptoms as the earliest manifestations of carcinoma of the

pancreas. In 1931, he reported 3 cases that came to operation in which "depression with crying spells, anxiety, insomnia, anorexia, loss of weight" were observed. Dunphy[20] has emphasized the danger of mistaking an early case of cancer of the pancreas for a neurosis and reports an instructive illustration.

Until aware that great loss of weight should always suggest the possibility of cancer of the pancreas, my associates and I made the humiliating mistake of sending at least 5 patients with early cancer of the pancreas back to the physicians who had referred them to us either with no diagnosis or with the diagnosis of anxiety neurosis. "None of these was jaundiced and none had bulky, light-colored stools. Glycosuria was not present. X-ray studies of the gastrointestinal tract were negative. One patient had indefinite abdominal pain; the others did not. All had a striking loss of weight from 15 to 41 pounds."

Up to this point we have dealt with the clinical features of pancreatic disease, and it must be admitted that Wardell's statement, made in 1871, that no symptoms have been discovered that are pathognomonic, is still true. The striking advance in accuracy of diagnosis is due to the discovery of three laboratory tests.

The Diastase Test

An increase of diastase in blood serum and urine has proved of the greatest value in the diagnosis of acute edema of the pancreas and acute pancreatic necrosis (acute pancreatitis). As this increase appears soon after the ducts in dogs are tied or the pancreas is injured, its origin is the diastase of the pancreatic juice that has escaped from the ducts or acinar cells into the lymph spaces of the interstitial tissue of the gland, from which it is taken up by the lymphatics or capillaries. It should be emphasized that the increased diastatic activity of the blood bears no relation to the internal secretion of the pancreas or to intermediate carbohydrate metabolism (diabetes mellitus). I was surprised when I was told that there is much confusion in regard to this, but the view was confirmed when a patient with severe epigastric pain, which I had recognized, by means of the diastase test, as being due to acute pancreatic disease, was given insulin by the attending physician. Thousands of examinations made in Europe and America have proved that a marked increase of diastase in blood or urine is a definite indication of pancreatic disease. Elevated values in the serum occur within a few hours after the onset of acute edema or necrosis of the pancreas. The discovery that in acute pancreatic necrosis, the diastase in the urine was increased was announced by Wohlgemuth as early as 1908, but nearly a quarter of a century passed before it was known that the increase in diastase in urine and blood regularly present at the onset of the disease might fall to normal within two or three days. Credit for this important discovery belongs to Skoog.[22] Years passed before it became generally known, for Skoog published his work in a small city in Sweden and not in a journal but in pamphlet form. Maximum values of diastase are usually, if not always, obtained within the first twelve hours. In exceptional cases, the drop to almost a normal level may occur in twenty-four hours. Hence, it is advisable to determine the diastase activity in all cases of acute abdominal pain as soon after admission to the hospital as possible. Gray, Probstein, and Heifetz[23] report a case of acute abdominal pain in the upper abdomen of one day's duration. The blood diastase on admission was 1,500 by Somogyi's method,[24] which is a very high level. The following day it dropped to 168, a normal value, and the pain had almost disappeared. We have abandoned the use of the Wohlgemuth method for the more accurate one of Somogyi, which, like that of Wohlgemuth, can be completed within an hour. Only fresh urine should be employed for the test because the diastase activity falls rapidly when the urine is allowed to stand. It is important to repeat the examination of the urine or blood every day if the first value obtained is only moderately elevated. A rapid drop in diastase activity gives to the first value added significance. The increase is said to persist longer in the urine than in the blood but, on the other hand, in a short space of time there may be greater fluctuations of the diastase of the urine than of the blood. Recently, I studied a case in which the urine that was passed in the early morning was distinctly elevated, but the next specimen, voided a few hours later, had only normal diastase activity.

Since Zoepffel,[25] in 1922, described 4 cases of acute pancreatic edema which he had observed at operation, a great many similar cases have been recognized. It is now known to be the most common disease of the pancreas. In 1933, Elman[26] collected 37 cases of "acute interstitial pancreatitis," as he termed it, including 4 of his own. In all of them edema, swelling, and induration of the pancreas were demonstrated at operation but without any evidence of hemorrhage, necrosis, or suppuration of the gland. Without the diastase test, the recognition of these cases is impossible prior to operation. By means of it, an exact diagnosis of the transient pancreatic disease can be made and needless operation avoided. The frequency of this disease, when sought for systematically, is indicated by the

records of the Jewish and City Hospitals of St. Louis, where 21 cases were recognized, with the aid of Somogyi's diastase method,[23] during a period of three years.

How often the disease is overlooked is indicated by my personal experience. Bearing the possibility of this acute pancreatic disease in mind, I have had the diastase value determined in 3 successive cases of severe acute upper abdominal pain which I have seen during the attack, and in all of them elevated diastase values proved that transient disease of the pancreas was the cause of the pain. In each case, a subsequent determination of the diastase activity on the following day showed a marked drop. Occasionally, we have found an increase of diastase in cancer of the pancreas and in chronic pancreatitis, and when it is present, it is a valuable aid in the diagnosis of these diseases which so often escape recognition during life. Wakefield[27] and his coworkers found the serum diastase increased in 19 per cent of their cases of carcinoma of the pancreas, but Comfort found an increase in only 8 per cent.[25]

The Lipase Test

Fortunately, we have in the Cherry-Crandall[5] test for serum lipase, using olive oil as a substrate, a trustworthy means for detecting most cases of acute pancreatic disease and many cases of cancer of the pancreas. Earlier attempts to achieve this end by determining the amount of esterase were unsuccessful. In unpublished experiments, we found no increase in the esterase in the blood after tying the pancreatic ducts of dogs, but we did find a marked increase in the lipase.

Johnson and Bockus[29] have published recently the results of their experience with this serum lipase test, which is by far the largest ever reported. During a period of six years, they made 1,200 determinations on 800 patients. The results of the test are expressed in cubic centimeters of one-twentieth normal sodium hydroxide. They state definitely that normal values are below 1 cc. and that abnormal values range from 1 to 10 cc. Comfort and Osterberg,[30] in a study of a group of 75 healthy persons, found only one with a lipase value of more than 1 cc. They believe that 1.5 cc. per cubic centimeter of serum should be taken as the high limit of normal, although they admit that any value greater than 1 cc. must be looked upon as a possible indication of pancreatic disease.

In our clinic, a value of 1.5 cc. has been obtained only once in a case in which the evidence did not clearly point to pancreatic disease, and in this single exception, the possibility of carcinoma of the pancreas cannot be excluded. J. K., aged 66, had lost about 25 pounds in weight within three months. He had vague recurrent pain limited to the right side of the abdomen, most marked in the right lower quadrant. The stools contained occult blood. The sedimentation rate was 82 mm. in one hour (Westergren). When he entered the hospital, he had a large tumor attached to the ribs in the lower right lateral region of the chest. Tissue obtained by biopsy was reported as a metastatic adenocarcinoma with a duct-like arrangement of the cells in a few places. It was suggested in the pathologic report that the primary growth might be in the pancreatic ducts or biliary system. He died several months after leaving the hospital, and the autopsy was performed in a city in another state. We were told that the autopsy revealed metastases in many bones and in the kidney and liver, but the primary tumor was not discovered. The pathologist reported that he made a number of sections of the pancreas and found it normal.

The following case from the autopsy records of the Peter Bent Brigham Hospital shows what careful search may be necessary to reveal a primary cancer of the pancreas.

Autopsy No. A-37-30.—The body was that of an old man, aged 80, and extremely emaciated. There were metastases in the supraclavicular lymph nodes and mediastinum, and there was thrombosis of the superior vena cava and innominate veins. The report read as follows: "The pancreas weighs 70 Gm. It is of unusual size, shape, and consistency. Nothing unusual is noted on palpation of the organ even after removal of the adjacent fat and connective tissue. On section of the extreme tip of the tail is a tumor 1.5 cm. in diameter." On microscopic examination, it proved to be the primary cancer.

In the light of this and similar cases, it is possible that a small cancer of the pancreas may have been overlooked at the autopsy on our patient, J. K.

Johnson and Bockus[29] obtained a serum lipase value above 1 cc. in 17 cases (81 per cent) of acute pancreatic disease and in 16 cases (53.3 per cent) of cancer of the pancreas.

The advantage of the diastase test in acute pancreatic disease is that it can be performed in from one hour to an hour and a quarter. The short time required is important, for speed in diagnosis is necessary in order to distinguish the disease from other acute abdominal conditions in which an operation should be performed without delay. On the other hand, the serum lipase test may still be positive when the diastase value has already fallen to normal. In cancer of the pancreas, the serum lipase test has the advantage because it is positive in a much larger percentage

of cases than the diastase test. It is the custom in our clinic to perform both the serum lipase and serum diastase tests and also to determine the diastase value of the urine.

The importance of doing both tests is shown in the following case.

Miss E. M. R., aged 41, previously healthy, was seized about 11:00 P.M. with severe, steady, dull pain in the left upper quadrant of the abdomen, radiating backward to the left infrascapular region. During the night she took 10 or 12 tablets containing aspirin and acephenetidin, an indication of the severity of the pain. When I saw her the following morning, her temperature was 103 F., respirations 11, pulse 120. The abdomen was soft. She located the pain below the left costal border over an area about 5 cm. in size. Its outer border was inside the midclavicular line. There was no tenderness over the painful area on light palpation, but deep palpation elicited severe pain. The urine voided that morning contained 720 Somogyi units and 64 units by the Wohlgemuth method. The elevated diastase value suggested acute pancreatic disease, but it was not high enough to be conclusive evidence. The pain ceased during the day. The following morning, the second day of the illness, the urine diastase had fallen to a low normal and although the patient had been ill for only thirty-four hours, the serum diastase was only 140 Somogyi units. (The upper limit of normal, according to Somogyi, is 150 units.) The serum lipase, however, in the same specimen of blood was 2.2 cc. N/20 NaOH, or more than twice the normal.

The Secretin Test

The introduction of this test in its improved form marks the greatest advance in the diagnosis of chronic pancreatic disease. Credit for its development belongs to the Swedish chemist, Hammarsten,[31] and to the Swedish clinicians, Ågren and Lagerlöf.[32] Pioneer studies of the response to secretin had previously been made by Chiray[33] and his associates in France and by Voegtlin, Greengard, and Ivy[34] in this country. Unfortunately, these investigators employed a single duodenal tube and as a result they obtained duodenal contents often admixed with a varying amount of gastric juice. The presence of gastric juice in the duodenum had a twofold action. It stimulated the secretion of pancreatic juice and at the same time diluted the contents of the duodenum. As early as 1922, three British physiologists, Lim, Matheson, and Schlapp[35] were able to obtain the separate and continuous collection of gastric and pancreatic secretions by employing a suction pump connected with two tubes, one in the stomach and the other in the duodenum. Ågren and Lagerlöf devised a double-barrelled gastroduodenal tube and collected the unmixed gastric and duodenal contents with the aid of continuous suction. Thanks to Hammarsten's discovery of a method of isolating secretin as a crystalline product from the intestinal mucous membrane, Ågren and Lagerlöf had a purer secretin for their studies than previous investigators had had and one that produced no unfavorable reactions even when injected repeatedly into the same person.

The results obtained by the Swedish investigators with their new test were first confirmed in this country by Diamond[36] and his coworkers, using the same secretin and the same technic.

During the past four years my associates and I have employed the test in 120 cases. Unfortunately, the secretin is not yet made in America. It can be obtained from an American firm that imports it from Sweden, but is too expensive to be used as a routine test. It is hoped that this important diagnostic agent will soon be made in America and that it will be available at a much lower cost. The position of the tube in the duodenum is determined with the fluoroscope. Fluid is withdrawn under a negative pressure of 20 to 40 mm. In twenty minutes, the average amount of secretion produced by the mechanical stimulation of the tube in the duodenum is about 20 cc., but it varies greatly in individual subjects. The secretin is injected intravenously, and within a minute or two, the increased flow of pancreatic juice begins and rapidly increases if the pancreas is normal. In our latest series of cases, the average amount obtained in ten minutes was nearly 40 cc. and in one hour 200 cc. It is remarkable that the stimulation of the pancreas by a single injection of secretin should produce such a profuse secretion. The largest volume secreted in an hour was 264 cc. and, in one instance, 100 cc. in ten minutes

Our experience has demonstrated the great value of the test. We have found that decreased pancreatic secretion cannot only be detected, but can also be measured by determining the amount of sodium bicarbonate secreted in a unit of time (one hour). This can be done by simple titration. If the decrease from the normal is great, we know that a pancreatic disorder is present, and hence it is not necessary to measure the enzymatic activity of the ferments, which requires chemical skill and special equipment. We have also clearly demonstrated that the hydrogen ion concentration is no safe guide to the amount of alkali secreted, for the pH may be that of normal pancreatic juice (7.6–8.4) when the sodium bicarbonate is so abnormally low as to indicate a serious disturbance of the pancreas.

We have found, furthermore, that in cases of carcinoma of the pancreas, the analysis of the fasting pancreatic secretion uncontaminated by gastric juice may not deviate from the normal in alkalinity; yet in these cases, the intravenous

injection of secretin at once revealed a marked diminution of the secretion of sodium bicarbonate. The enzyme content of the fasting contents stimulated only by the presence of the duodenal tube may be suspiciously low in chronic pancreatic disease. The accompanying table shows the average enzyme values contained in the fasting pancreatic juice in 5 cases of cancer of the pancreas and in health (Table 1). It is possible that a study of more cases may show that the decided diminution of the diastase in the fasting duodenal contents in our cases of cancer of the pancreas may have diagnostic significance. In no instance have we found all the enzymes or sodium bicarbonate entirely absent from the duodenal contents. Hence, total obstruction of the pancreatic ducts did not occur in a single case of ours. Neither did it occur in any of Lagerlöf's[37] larger series and one can infer from these findings that it must be of very rare occurrence. But occasionally, the volume of pancreatic juice secreted on secretin stimulation is very little and the amount of sodium bicarbonate and of trypsin, lipase, and diastase is greatly reduced. In such a case, pancreatic digestion is either absent or markedly impaired, as is revealed by food absorption studies. In 2 specimens of pancreatic juice from one case of the 120 examined, trypsin was entirely absent but in a third fraction, collected twenty minutes later, a trace was present. Lipase and diastase have been present in every specimen of pancreatic juice that was examined.

The external secretion of the pancreas is stimulated by both chemical and nervous mechanisms. Secretin, the chemical stimulant, produces an abundant, watery secretion, rich in sodium bicarbonate and relatively poor in ferments. Drugs that stimulate the pancreatic cells by way of the vagus produce a pancreatic secretion that is rich in ferments but poor in sodium bicarbonate.[38] One of these drugs is mecholyl chloride. Comfort and Osterberg[39] have used this drug in doses of 15 mg., administered subcutaneously, as a test of pancreatic function. They used the double-barrelled gastroduodenal tube employed in the secretin test and a negative pressure of 25 to 40 mm. to collect the duodenal contents and to prevent the flow of gastric juice into the duodenum. In a later paper Comfort[6] gave the results of the mecholyl test in a definite case of chronic pancreatitis. After stimulating pancreatic secretion by mecholyl, there was scanty secretion of diastase instead of the abundant secretion obtained when the pancreas is normal. They state that in this case there was a hypersecretion of trypsin and lipase, and also a larger volume of duodenal contents. Moss and Freis[40] showed the value of the test in

TABLE 1

Willstätter's methods were used for trypsin and diastase determinations, Nørby's for diastase, Briggs' for phosphatase, and van der Bergh's for bilirubin.

Duodenal Secretion Collected in Twenty Minutes Without Secretin Stimulation

	10 Control Cases	5 Cases Cancer of the Pancreas
Volume	12.2 cc.	11.2 cc.
Meq. $NaHCO_3$	25	18
CC. N/10 $NaHCO_3$	2.9	2.6
Trypsin-Units per cc.	0.51	0.25
Lipase	0.38	0.18
Diastase	16.7	2.7
Phosphatase-Bodansky Units	74	73
Bilirubin-mg.%	17	0.3

2 cases of pancreatic lithiasis. In both, there was a subnormal output of diastase and lipase after the injection of mecholyl. Table 2 gives the results that we obtained in one of our cases of carcinoma of the pancreas compared with the results obtained from a person with a normal pancreas. It shows the striking increase in the amount of trypsin, diastase, and lipase after vagus stimulation by mecholyl in the normal case and the slight response in the patient with cancer of the pancreas.

In view of the expense of secretin and the difficulty in obtaining a supply, it is urged that the mecholyl test be widely employed, for it promises to be of important diagnostic value in the recognition of carcinoma of the pancreas and of chronic interstitial pancreatitis.

Increased Importance of Early Diagnosis

Up to 1930, early operation in acute pancreatic necrosis (acute pancreatitis) was generally advocated. Since that date, however, many surgeons in Europe and America have presented convincing evidence in favor of conservative treatment. In an earlier paper,[41] I presented the figures from a number of clinics which showed that the death rate had been reduced thereby from more than 50 per cent to 25 per cent and in some clinics even less. Since my paper was published, additional evidence against operation in acute pancreatic necrosis has been collected. This discovery that lives can be saved by the surgeon if he refuses to operate needs to be spread abroad more widely. In the latest edition of a standard textbook of surgery the old teaching that early operation is indicated in acute pancreatitis is still advocated.

The importance of early diagnosis in cancer

of cases than the diastase test. It is the custom in our clinic to perform both the serum lipase and serum diastase tests and also to determine the diastase value of the urine.

The importance of doing both tests is shown in the following case.

Miss E. M. R., aged 41, previously healthy, was seized about 11:00 P.M. with severe, steady, dull pain in the left upper quadrant of the abdomen, radiating backward to the left infrascapular region. During the night she took 10 or 12 tablets containing aspirin and acephenetidin, an indication of the severity of the pain. When I saw her the following morning, her temperature was 103 F., respirations 11, pulse 120. The abdomen was soft. She located the pain below the left costal border over an area about 5 cm. in size. Its outer border was inside the midclavicular line. There was no tenderness over the painful area on light palpation, but deep palpation elicited severe pain. The urine voided that morning contained 720 Somogyi units and 64 units by the Wohlgemuth method. The elevated diastase value suggested acute pancreatic disease, but it was not high enough to be conclusive evidence. The pain ceased during the day. The following morning, the second day of the illness, the urine diastase had fallen to a low normal and although the patient had been ill for only thirty-four hours, the serum diastase was only 140 Somogyi units. (The upper limit of normal, according to Somogyi, is 150 units.) The serum lipase, however, in the same specimen of blood was 2.2 cc. N/20 NaOH, or more than twice the normal.

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We have found, furthermore, that in cases of carcinoma of the pancreas, the analysis of the fasting pancreatic secretion uncontaminated by gastric juice may not deviate from the normal in alkalinity; yet in these cases, the intravenous

nary diastase may be found increased after the blood diastase has dropped to normal.

A marked increase of serum lipase occurs early in acute pancreatic disease and may equal in diagnostic value the increase in diastase, but the test has not yet been employed in a sufficient number of cases to permit a definite statement as to its importance when compared with the diastase determination. A diastase determination has the advantage over the serum lipase determination in that it can be performed within an hour to an hour and a quarter while the serum lipase values cannot be estimated in less than twenty-four hours. It is important to make a series of daily determinations as a fall in the amount gives early moderate increases of enzyme value additional diagnostic significance.

The serum lipase is frequently increased in cancer of the pancreas and the serum and urinary diastase are occasionally increased.

The secretin test is of great value in the diagnosis of chronic pancreatic disease, even in cases in which the stools are normal. If secretin is not available, the mecholyl test should be employed.

The importance of early diagnosis in acute pancreatic disease has been increased since the discovery that operation, even in severe cases, is unwarranted. The importance of early diagnosis in cancer of the pancreas has been increased since it has been shown that life can be prolonged and suffering lessened by operation.

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LOSS OF AN ARM OR LEG IN WAR NOT A DISASTER

Teaching by example is the most effective means of restoring the courage and self-confidence of the war wounded who have lost a limb in the present conflict, J. P. McEvoy, of New York, asserts in *Hygeia, The Health Magazine*, for August. Most men who think that they are permanently incapacitated as the result of the loss of an arm or leg find new hope in the fact that others who have suffered a similar disaster have, by the use of an artificial limb and a determination to overcome their handicap, become self-reliant and their injury almost unnoticeable.

Explaining the importance of this problem among the war wounded, Mr. McEvoy declares that while "actual figures are a military secret, it is unofficially admitted that two-thirds of our war wounded now coming back from the battle zone are 'amputees.' The biggest percentage of these have lost one leg, usually the right one. There are two or three times as many leg casualties as arm, the result mostly of the fiendishly perfected land mines in this conflict. . . . .

"It is only natural for a boy who has lost a limb to feel that this is a rare disaster, but there were 4,403 'amputees' from the last war, and even in normal times as many as 10,000 lose arms or legs annually in this country from automobile and railroad accidents and infectious diseases. All told, there are approximately 350,000 legless or armless people in the United States. . . . ."

TABLE 2

Fifteen cc. of mecholyl chloride (acetyl-beta-methylcholine chloride) were injected subcutaneously. For determining trypsin and lipase in the duodenal contents, Willstätter's methods were used and Nørby's for diastase, Briggs' method for phosphatase measured in Bodansky units, and van der Bergh's for bilirubin.

20 MIN. COLLECTION	VOLUME C.C.	C.C. %NaOH	UNITS IN TOTAL VOLUME TRYPSIN	LIPASE	DIASTASE	PHOSPHOTASE	MG. BILIRUBIN	
CONTROL CASE	24	1.3	14.3	34.6	47	0.55	.44	BEFORE MECHOLYL
CASE OF R.M. Cancer of Pancreas	56	5.6	0	6.4	13.4	2.5	1.7	
60 MIN. COLLECTION								
CONTROL CASE	118	18	84	856	1444	5.5	1.2	AFTER MECHOLYL
CASE OF R.M. Cancer of Pancreas	38	5.7	0	4.6	46	5.2	2.6	

of the pancreas has been increased since it has been shown that life can be prolonged and suffering lessened by surgical treatment. The obstructive jaundice which develops in the course of the disease often leads to hepatic intoxication and death. This can be overcome by a cholecystojejunostomy. In most cases, this is the operation of choice as metastases develop early in the disease.

Credit belongs to Whipple for demonstrating that the removal of the head of the pancreas and the second portion of the duodenum is a practical procedure in selected cases of cancer of the pancreas. Whipple[42] has had 5 patients who survived from five to twenty-eight months after this radical operation. This is a definite prolongation of life, for the average duration of the disease, as shown earlier in this paper, is seven months or less. Whipple does not provide for the entrance of pancreatic juice into the intestine. Fortunately, communications usually develop between the stump of the pancreas and the intestine, and thereby pancreatic digestion is preserved. Lamson, Marks, and I[43] demonstrated in dogs as early as 1909 that if all the pancreatic juice is permanently excluded from the intestine, the animal loses weight rapidly and the stools become bulky and increase in number. They contain much fat, and undigested meat fibers appear in great number when the dog is fed meat. Our work has been confirmed, and I have made similar observations on patients in whom the pancreatic ducts were completely occluded. In the Frank Billings Lecture,[44] read in June, 1942, at the session of the American Medical Association, I stated that "it will probably be found wise to implant the stump of the pancreas into the wall of the stomach or jejunum, as it is certain that the essential pancreatic juice will not find its way from the pancreas to intestine in all cases." This prediction was verified sooner than I expected, for only two months later, Dennis[45] reported a case from Wangensteen's clinic of carcinoma of the pancreas in which a modified Whipple operation had been performed. Soon afterwards, the patient began to lose weight and to pass "bulky, fatty, strong-smelling stools." Chemical studies showed that only 60 per cent of the fat of the food was absorbed.

Summary

Marked loss of weight and recurrent pain are the most common symptoms in carcinoma of the pancreas. The pain is not confined to the epigastrium but may involve any part of the abdomen and may be severe in the back.

More attention should be paid to the search for undigested muscle fibers in the stools. Unless there is greatly accelerated passage of food through the intestine, the presence in the feces of a considerable number of undigested muscle fibers is a definite indication of diminished pancreatic digestion and hence of pancreatic disease. In addition, if chemical facilities are available, the nitrogen output in the feces should be determined because the daily amount is increased four to eight times the normal when the pancreatic ducts are occluded. A marked increase of serum diastase and of diastase in the urine regularly occurs at the onset of acute pancreatic edema and of acute pancreatic necrosis and is of great diagnostic value. The amount of these ferments declines rapidly and may fall to the normal in forty-eight or even thirty-six hours, even when the disease is progressive. The uri-

dangers of surgery are distinctly fewer than those of letting the individual go untreated.

Broadly stated, the indications for operation can be briefly set forth as follows: (1) if there is any important retardation in the person's physical growth, operation should be strongly advised and every effort made to have the patient accept this form of therapy; (2) if there has been any evidence of cardiac embarrassment in the past or present, operation should be likewise urged upon the individual; (3) if there is an existing Str. viridans blood stream infection, and there are no cutaneous petechiae, operation should be immediately undertaken as a possible lifesaving procedure; and (4) if the individual has never had any trouble from the open ductus and merely wishes to avoid a future Str. viridans infection, operation can be suggested but can be left to the individual's own decision. In short, in the first three types of cases, operation has so much to offer the patient that the doctor should make every effort to have the individual undergo surgery. In the fourth type of case, operation probably has some merit (only future years can give a final answer to this question), and its acceptance or refusal can be left to the patient's choice in the matter.

Diagnosis

Since the patent ductus arteriosus now has a definitive form of treatment, it is important to recognize it and to segregate it from the vast category of "congenital heart disease." Fortunately, the physical and laboratory findings are such that this can be done with great certainty. Depending upon the severity of the lesion, there may or may not be impairment of growth or evidence of cardiac embarrassment, such as dyspnea, orthopnea, or limitation of activities. The murmur is almost always characteristic. It is widespread, but it is loudest over the pulmonic area—the second and third interspaces to the left of the sternum. It is continuous and has an accentuation during systole. It has a distinct rumbling or machinery-like quality. If the murmur is very intense it is accompanied by a systolic thrill or by a continuous thrill which is accentuated during systole. Absence of a thrill is consistent with the diagnosis; the presence of a thrill indicates one of the larger ductal leaks. The heart may be slightly enlarged but marked hypertrophy or dilatation is quite rare. Uncomplicated cases have no cyanosis; neither do they have clubbing of the nails. The systolic blood pressure is always within a normal range. The diastolic pressure is diminished if the ductal opening is great—the greater the leak, the lower will be the diastolic level. Roentgen films usually show slight to moderate cardiac enlargement, some prominence of the pulmonary artery, and slight to moderate congestion in the lung fields. Fluoroscopy reveals an overactive heart beat and an increased pulsation of the aortic arch and pulmonary artery. All of these x-ray changes may be quite mild if the ductus is small, or they may be quite marked if the ductus is large. Electrocardiographic tracings are almost always normal, as far as any axis deviation is concerned. Some left axis deviation is occasionally seen when there has been cardiac embarrassment. Right axis deviation almost certainly indicates the presence of some other form of heart disease.

There are few cardiac conditions which can be diagnosed with as high a degree of accuracy as is now possible for the patent ductus arteriosus. In a series of 52 patients who have had thoracic exploration, all of them had an open ductus. In only 2 were there other serious complicating lesions which made it inadvisable to close the ductus surgically.

Operative Procedure

In the first 14 individuals for whom surgical closure of the ductus was employed, the method used was that of simple ligation[2,3] of the vessel with heavy, braided silk or with a narrow linen tape.[5,6] This gave perfect results in most instances, but a tiny leak was left in some because the ligatures were not tied tightly enough (for fear of their cutting through the vessel wall). In the subsequent 27 cases, this ligation was combined with wrapping the ductus in cellophane in order to stimulate regional formation of scar tissue which would contract and squeeze off any minute opening which might exist at the end of operation. In the last 9 cases, the ductus has been completely divided and the aortic and pulmonary ends have been separately sutured.[4] Although complete division is a more difficult task, it insures a prompt, a complete, and a permanent closure of the shunt. Its accomplishment in these 9 individuals without complication and without mortality is sufficient proof to indicate that this ideal type of operation will probably have a wider use in the future.

Under the varying conditions found in different age groups, a few statements can now be made regarding the optimum time for operation on these subjects. One 11-month-old baby weighed only 13 pounds and had previously been hospitalized three times for recurrent cardiac failure, yet operation was performed without much hesitation. In general, children could be rather easily treated because the ductus and the great vessels were softer, could be more readily compressed, and a complete closure was easier to obtain. As a rule, the adults presented more difficulty at the operating table because the in-

SURGICAL THERAPY FOR THE PATENT DUCTUS ARTERIOSUS

ROBERT E. GROSS, M.D., Boston

CLINICAL experience gained from 50 patients who have been surgically treated for closure of a patent ductus arteriosus now makes it possible to give an evaluation of this form of therapy.

The first successful obliteration of a patent ductus arteriosus was accomplished on August 26, 1938. Since then operations have been undertaken on individuals of varying ages and with diverse complaints. The possibilities of relief from such congenital heart disease makes it desirable to place before this Society a report on our findings to date. The study of these, and of other untreated patients, has given us a clearer view of the life history of this vascular abnormality when it is left untreated and when it is surgically corrected. The benefits, occasional failures, and the dangers of operation can now be defined. While the series of cases at hand is not large, it represents well-studied material with good follow-up observations which permit recording with reasonable accuracy the progress which has been made.

Rationale and Indications for Operation

Cardiologists of wide experience have given ample testimony to the fact that patients with a patent ductus arteriosus occasionally live a normal span of years and may have little or no cardiac embarrassment during this protracted period of time. Such a prognosis is by no means the rule, and it is probably true that these rare and fortunate individuals are the ones who have ducti which are smaller than the average. In the last few years several competent observers have investigated this problem statistically and have concluded that many children or young adults who possess this cardiovascular abnormality will have their lives or health jeopardized by one of several important complications. These risks, when added together, are numerically great enough to make it evident that a patent ductus arteriosus is not so innocuous a lesion as it was once thought to be.

There are three main types of complication which demand attention. First, the shunt from the aortic arch into the pulmonary circuit may divert an appreciable proportion of the blood away from the peripheral circulation. Because of this the individual is backward in his physical development. Second, this arteriovenous type of fistula may be so large that an astounding amount of blood is short-circuited through it. Physiologic studies[1] have shown that under some circumstances as much as 30 to 50 per cent of the left ventricular output can be passed back through the shunt. The great reserve which is normally present in the heart usually permits an adjustment to this burden by increasing the cardiac rate and by stepping up the stroke-volume output. Although the heart has a tremendous tolerance for an overload of this sort, its continuance for many months or years can lead to cardiac embarrassment or bouts of frank failure. Third, the patent ductus arteriosus, like any other type of congenital heart disease, carries the danger of superimposed Streptococcus viridans endocarditis (or endarteritis of the pulmonary artery) in probably 25 per cent of the cases. In short, these major complications have given impetus to the search for a surgical treatment which could close the ductus and could reasonably assure the individual good health and a longer life expectancy.

When these operations were first undertaken, only those individuals were selected for surgery who had manifest impairment of health or growth. Since this was a new field, the risks of surgery were not yet determined, and it seemed justifiable to subject to operation only those patients who were already having an important degree of difficulty from a ductus or one of its complications. Hence, our early cases—and indeed most of those in the present series—were children or adults who were obviously handicapped and for whom closure of the shunt offered some definite alleviation of an existing complaint. Only those patients were operated upon who exhibited a marked retardation in growth, who had evidence of cardiac embarrassment, or who had a subacute bacterial endocarditis.

As practice with this operation grew and as the technic could be refined, it was found that the operative mortality was not over a small percentage. It then became permissible to broaden the use of the procedure and to employ it for those human beings who had never encountered any difficulty from the open ductus but who might possibly develop a Str. viridans infection at some future date. Clearly, this means weighing the relatively high risk of endocarditis (which is in the future) against the very low risk of surgery (which is immediate). When this whole problem is examined from the long-term point of view, our present knowledge indicates that the

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Discussion of Joint Meeting of Sections on Medicine and Surgery*

ALFRED H. NOEHREN, M.D., *Buffalo*

I believe that everyone present will agree that the program of this joint meeting has been outstanding The bringing together of four such speakers who are not only authorities in their respective fields but also pioneers in new forms of diagnosis and treatment is seldom found on the program of a state society and is associated only with the meetings of large national societies

I shall limit my discussion to the surgical aspects of the papers and hope that some of the cardiologists and internists present will give to the excellent presentation of Dr. Levy and the medical aspects of the other papers the consideration that they deserve

With the surgical treatments of certain cardiac conditions proposed by Drs Beck and Gross I have had no personal experience. In fact, they are so new that very few men have had an opportunity to practice them. I shall, therefore, try to consider these advances in surgery of the heart in a larger sense, their significance as showing surgical trends, their possibilities, and their possible dangers

It was my privilege to be house surgeon to the late Dr Willy Meyer at the time when he was doing his pioneer work on thoracic surgery Following a visit to this country by Sauerbruch, he used his differential air pressure chambers with which to open the pleural cavity. He operated upon many patients, most of them with advanced cancer of the lungs, and almost all of them died But Dr. Meyer was not discouraged and finally had engineers fit up a room in the basement as a large differential air chamber

He had just about completed this room with much effort and expense, when his associate surgeon, Dr Franz Torek, successfully removed a carcinoma of the esophagus, the first in this country and possibly in the world, opening the chest with no more apparatus than an intratracheal insufflation tube This did away with all differential pressure chambers and was a bitter disappointment to Dr Meyer, but he took it gracefully and gave Dr Torek full credit for his achievement

Was Dr. Meyer's pioneer work in vain? Certainly not It was only through the enthusiasm and interest in thoracic surgery that he created and through the many lessons learned in his surgical attempts that Dr Torek was able to do his operation And this, in turn, was just another step in the events which have made intrathoracic operations so safe today, the intratracheal tube now being replaced in many cases by the simpler ordinary facemask

And so surgery of the heart is made possible by these same men and is itself progressing in the same way It was as recent as 1895 that the first recorded successful suture of a wound of the heart was done Today successful suture of heart wounds is a common procedure Suppurative pericarditis and chronic adhesive pericarditis are successfully treated by surgery Proper sympathectomies have benefited a limited number of patients with angina pectoris Total thyroidectomy in certain forms of heart failure is recommended by Blumgart and many others, but there is not yet agreement as to its value Allen, Graham, and others have successfully done valvotomies through a cardioscope Faûteux is experimenting with the ligation of a properly selected coronary vein in coronary sclerosis, as is done in arteriosclerosis of the extremities, with encouraging results As far as I know, it has not yet been done on a human patient, but Faûteux suggests that it might be indicated as a preventive measure against a second attack of coronary thrombosis And finally we come to the operation of Dr Beck to improve an impoverished coronary supply by the establishment of an additional coronary circulation and the operation of Dr. Gross of closing a ductus arteriosus that has remained patent

In view of all this, is it too great a stretch of the imagination to suppose that some day leaky valves of the heart will be repaired, stenoses will be stretched, and even ulcerative endocarditis be attacked by local excision of vegetations or topical application of antiseptics to the valves involved? Pioneers in these fields should not be judged by their immediate mortality rates or cures The question should rather be asked, is the direction they are taking sound or will it lead to a blind alley? Are their concepts of the physiology of the heart on which they base their work sound? If they are, then they are to be encouraged, for mortality will be decreased and results will be improved by more experience and constant improvement in technic

We as a profession should have a special interest in any advance in the treatment of coronary sclerosis, for many of our colleagues are suddenly removed from us by this dread disease, usually at the prime of their lives, when their experience has made them the most valuable members of our profession

In regard to Dr Beck's operation, certain questions come to mind While it is true that the heart is connected with the body only at its point of suspension and all the blood supply goes through this area thereby depriving it of any collateral circulation, this would nevertheless seem to be of some advantage, for it gives the heart greater freedom of action Is not any advantage gained by increasing the blood supply through a graft neutralized by the check it places on the free movements of the heart? Furthermore, similar graft operations, such as the Talma omentopexy in cirrhosis of the liver, have not been too successful Will they be more successful in the heart?

Closure of the patent ductus arteriosus, as advised and described by Dr Gross, together with his brilliant results in 50 cases, would seem to merit universal adoption for the treatment of this condition Nevertheless, as pointed out by Dr Gross, some individuals live a long normal life in spite of a persistent patent duct Therefore, I believe he is very wise not to insist on the operation as a prophylactic in those cases that do not as yet show any bad results

* For the papers discussed by Dr Noehren, see pages 1836 1841 1847, and 1856

creased thickness and sclerosis of the ductus and adjacent great vessels made it technically harder to get the shunt completely closed off. Hence it is evident that closure can be performed at any age, but it is a little easier to attain in the childhood years.

Review of Surgical Results

As indicated above, two patients were explored and closure of the ductus was deemed inadvisable; both of these were discharged from the hospital on the ninth day. In the remaining 50 patients for whom ductal closure was attempted there were two deaths (the seventh and the eighteenth in the series). One died during the second week from a staphylococcus infection, and the other died during the third week from hemorrhage. These 50 individuals ranged in age from 11 months to 37 years. Seven of them—all adults—were treated for a superimposed Str. viridans bacteremia.

Those individuals who were previously backward in their physical development have had a subsequent gain in weight well beyond their preoperative rates. This enhanced growth has been highly satisfying and is presumably due to an increased flow of blood through the body.

Individuals who have had varying degrees of cardiac disability or limitation of their physical activities have spontaneously undertaken more physical exertion after operation and have had disappearance of their cardiac symptoms. The reason for this change has been investigated by direct physiologic studies[1] which point out conclusively that the minute-volume output of the left ventricle is immediately and strikingly reduced when the shunt is closed off. Hence, the reserve of the heart can be built up beyond its preoperative level.

In the early part of the series some individuals were left with a minimal fistula. In other words, the large opening was reduced to a very small one, but was not completely shut off. We are now able to affect a complete closure, and as evidence of this we can demonstrate the absence of thrill and murmur after operation.

In those individuals who had a low diastolic pressure before operation, this has been restored to normal—indicating that the serious leak from the aortic arch has been stopped.

Probably most surprising and most encouraging of all has been the striking and rather sudden cure of some individuals who had been afflicted with a Str. viridans endocarditis (or endarteritis of the pulmonary artery). Touroff[7] first successfully treated one of these patients by surgical obliteration of the ductus. In the present series, 7 adults were operated upon primarily because of a Str. viridans bacteremia. Five of them have completely recovered. It is logical to believe that operation will bring more favorable results in early cases than in late ones, but the duration of the illness is not the sole factor. If the vegetations are limited to the pulmonary circuit (there are no cutaneous petechial hemorrhages) the blood stream can be sterilized in most cases by closure of the ductus.

Summary

The ductus arteriosus is an essential part of the circulatory apparatus of the fetus. After birth, this vessel normally closes during the neonatal period. Its persistence has been compatible with a long and active life in some human beings, but this shunt between the aortic arch and the pulmonary artery may be followed by limitation of the individual's physical growth, by cardiac failure, or by subacute bacterial infection with the Str. viridans.

Surgical closure of the ductus arteriosus has now been done in a sufficient number of cases to demonstrate that it can be performed with a negligible mortality and that the results of operation are quite beneficial. This surgical procedure has been done in 50 individuals varying in age from 11 months to 37 years. Simple ligation of the ductus has been highly satisfactory for most of the patients on whom it was performed. The failure of the method to produce an absolute closure in some instances has now made it advantageous to resort to the more difficult, but ideal operation of complete division of the ductus. This has been successfully accomplished nine times, without complication and without mortality.

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PRECAUTIONARY TATTOOING

It has been proposed that certain individuals carry a tattoo mark to protect them against disaster when they might be unconscious. Such individuals might be *diabetics, epileptics,* and those having known serum or other sensitivity.—*Pennsylvania M.J.*

BODY SNATCHING IN NEW YORK CITY

CLAUDE HEATON, M.D., New York City

THE physicians of Colonial America realized the need for a knowledge of anatomy, but there were serious difficulties in the way of obtaining it, for people generally did not understand the purpose of dissection and were bitterly opposed to the use of dead bodies for any such purpose. Dissections, therefore, were rarely performed except by stealth.

The first dissection in New York City was done by Dr. John Bard and Dr. Peter Middleton, who in 1750 injected and dissected the body of Hermanns Carroll, an executed criminal, "for the instruction of the young men then engaged in the study of medicine."

The earliest printed announcement of lectures on anatomy in this country was apparently that of Thomas Wood, Surgeon, who placed the following advertisement in the *New York Weekly Post-Boy* of January 17, 1752:

"Whereas Anatomy is allowed on all Hands, to be the Foundation both of PHYSICK and SURGERY, and consequently, without SOME knowledge of it, no person can be duly qualified to practice either: This is therefore to inform the Publick, That a COURSE of OSTEOLOGY and MYOLOGY, is intended to be begun, some Time in February next, in the City of New Brunswick, (for which Notice will be given in this Paper, as soon as a proper number have subscribed towards it). In which Course, all the human BONES will be separately examined, and their Connections and Dependencies on each other demonstrated; and all the MUSCLES of a human BODY dissected; the Origin, Insertion, and Use of each plainly shown. This Course is proposed to be finished in the Space of a Month.

"By Thomas Wood, Surgeon

"Such Gentlemen who are willing to attend this Course, are desired to subscribe their Names as soon as possible with Mr. Richard Ayscough, Surgeon at New York or said Thomas Wood, at New Brunswick, paying at the same Time, THREE POUNDS, Proc. and engaging to pay the said Sum of Three Pounds more, when the Course is half finished.

"N.B. If proper Encouragement is given in this Course, he proposes soon after, to go thro' a Course of ANGIOLOGY and NEUROLOGY; and conclude, with performing all the OPERATIONS of SURGERY, on a dead body: The Use of which will appear to every Person, who Considers the Necessity of having (at least) SEEN them performed, before he presumes to perform them himself on any living Fellow Creature."

One of the first references to body snatching in New York appeared in a news item in *The New York Gazette* for November 28, 1763:

"Tom, a Negro man slave, condemned the last Assizes for attempting a Rape on Mary Ryan, a Child, was executed at Fresh Water. The Mob was so incensed, after he was turned off, that the Officers could not stand their Ground from the Snowballs, Stones, &c. thrown at him; thus, were obliged to leave him to their Brutality: After they cut him down, they dragged his Body through some of the streets; when the great good Conduct of a single Gentleman soon put a stop to their Inhumanity, by seizing the Corpse, and ordering it to be interred, judiciously Knowing the Law was fulfilled by the Execution, and consequently that the Publick ought to be therewith contented. But it is said the Body has since been taken up, and likely to become a Raw Head and Bloody Bones, by our Tribe of Dissectors, for the better Instruction of our young Practitioners."

Three days before this news was printed private lectures on anatomy had been started by one Dr. Samuel Clossy, an Irish physician recently arrived. He was inclined, according to Dr. Francis, "too much to worship the Rosy God." As the author of *Observations on some of the Diseases of the Human Body, chiefly taken from the Dissections of Morbid Bodies*, he had a certain reputation and the backing of the former governor of the province in his ambition to teach anatomy at Kings College. Some of the difficulties in the way were set forth in a letter of John Watts, Governor of the College, to General Robert Monckton, dated May 16, 1764:

"I shall not fail to make use of your name with the Governors of the College in favour of Doctor Clossy whenever it is seasonable to do it, at present it is not, there is no opening for Anatomical Lectures, the Students are so few & the funds so overcharged, besides we have so many of the Faculty allready destroying his Majesty's good subjects, that in the humour people are, they had rather one half were hangd that are allready practicing than breed a New

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from the condition, and he is also wise to let the patient decide. In the meantime, we will be much interested to see whether other surgeons get the same good results and whether these results will be permanent.

Dr. Pratt in his paper on "Diseases of the Pancreas" speaks with authority because he has made a lifelong study of that organ and is responsible for much of the progress made in the treatment of its diseases. I have time to speak of only two recent developments in the surgery of the pancreas that were mentioned by Dr. Pratt.

First, surgeons no longer operate in cases of acute pancreatitis unless signs of suppuration develop because it has been found that these cases do better on conservative treatment; and, second, in cancer of the pancreas, surgery now gives promise of prolongation of life and possible cure, because of the possibility of the successful extirpation of the duodenum and head of the pancreas.

Quite obviously an early diagnosis in both of these conditions is most important, in the former to differentiate it from other acute conditions in the abdomen in which early operation is indicated, and in the latter, to recognize the condition before it has passed the stage of operability. In acute pancreatitis, thanks to Dr. Pratt and other workers, we have in the determination of diastase in the blood or urine a most reliable differential test and every case of acute pain in the upper abdomen should have this test made at once and preferably repeated several times. I say "at once" advisedly, because, as pointed out by Dr. Pratt, it is elevated only in the beginning of the disease and soon comes down to normal, even though the disease may continue.

I believe that in these papers today there have been brought before us the results of experimental research and its clinical applications that will go down in history as milestones in the progress of medicine and surgery.

TEST ADDS TO SAFETY OF CONTINUOUS CAUDAL ANESTHESIA

A simple test which adds to the safety of continuous caudal anesthesia, the new method of painless childbirth, is announced by Dr. Nathan Block and Dr. Morris Rotstein, of Sinai Hospital, Baltimore (*Journal of the American Medical Association*, June 26).

In this new childbirth anesthesia method, developed by Dr. W. B. Edwards and Dr. R. A. Hingson, of the U.S. Public Health Service, a painkilling chemical is dropped into the caudal canal near the base of the spine. This produces a local anesthetic effect somewhat like that given for pulling a tooth without gas.

The anesthesia is limited to the nerves affected in childbearing, leaving the mother conscious and comfortable.

Although some thousand mothers have now had their babies safely with this new style of anesthesia there is danger of the anesthesia getting into the spinal canal instead of the caudal canal. If this happens, the mother may die.

The danger can be avoided, the Baltimore doctors find, by injecting a salt solution before the anesthetic and determining the rate at which the salt solution flows into the body. If it flows faster than 105 drops per minute after three minutes, the needle has probably been injected into the spinal canal.

Contrary to their expectations, they found from tests under identical conditions that the salt solution will flow into the spinal canal at a rate almost too fast to count, averaging about 230 drops per minute. In most of the cases studied, the solution flowed into the caudal space at a rate between 80 and 110 drops per minute.

They report success with the anesthetic method in 100 childbirths and 11 obstetric surgical procedures. The preliminary salt test was done in the last 69 cases.—*Science News Letter*

DOCTOR'S RESPONSIBILITY IN ABSENTEEISM

From a governmental agency engaged seriously in the war effort with employees who work under the rules and regulations of the Civil Service Commission comes a complaint that some physicians do not take with sufficient seriousness their responsibility in controlling unnecessary absenteeism. One of the rules of the Civil Service Commission concerns the number of days and the pay allowed for sick leave. A request for over three days' sick leave must be accompanied by a certificate from a physician. Absence from duty is not permitted because of a slight illness which would not prevent the performance of duty or endanger the health of others. Nevertheless, many employees are absent for three or more days and seem to be able to prevail on some physicians to write certificates. If these physicians knew that certificates which cover certain slight illnesses would not necessarily be honored they probably would not bother to issue them. In one instance just checked by the government agency concerned, a physician in Philadelphia issued a certificate to the effect that a worker was sick with gastroenteritis and was unable to work for a period of six days in the month of May, whereas investigation revealed the fact that the person who submitted the certificate actually was working in another establishment on the dates stated and was attempting to obtain pay from two sources by requesting sick leave with pay from one of them.

In the interest of the war effort and as a means of reducing inexcusable absences, physicians should refuse to issue certificates except in cases that can undoubtedly be considered serious and when there is no doubt that the illness would incapacitate the person concerned for duty.—*J.A.M.A.*

the church, where they found nothing although they ransacked the place from cellar to garret. Dr. Hicks, who was suspected of being the guilty party at the hospital, escaped by hiding on the roof behind the chimney. In their fury the crowd destroyed the home of Sir John Temple, mistaking "Sir John" for "surgeon." Several young doctors escaped and were lodged in the jail for safety.

During the night small parties patrolled the streets and on Monday morning the crowd collected again. By afternoon the affair assumed a more serious aspect. A mob gathered in front of the jail and demanded the doctors who were still willing prisoners within. Governor Clinton now ordered out the militia and at three o'clock a small party, about eighteen armed men, assembled to protect the jail. Another party of about twelve men were seized and their arms destroyed. The crowd tried to force the jail and were held back by a handful of men for several hours. Windows were broken and fences torn down. As darkness approached, another party of armed citizens marched to the relief of the jail, accompanied by a number of officials. John Jay, on his way to the riot, was hit by a stone thrown through his carriage window. Hamilton, who had joined the officials, sought with his soothing tongue to disperse the mob, but their answer was a volley of stones. Mayor Duane was loath to order the soldiers to fire. The Governor, however, was determined to use force. Baron Steuben, in the goodness of his heart, was remonstrating with the governor against attempting to quell the riot with firearms when suddenly he was struck in the head by a brickbat and fell bleeding to the street. He cried out, "Fire, Governor, fire!" At the first volley five persons were killed and seven or eight severely wounded. Baron Steuben was carried to the home of Lady Kitty Duer, where he received attention. On Tuesday morning the militia and a regiment of artillery were called out, and order was finally restored.

The riot attracted widespread attention. Thomas Jefferson, who was in Paris, was worried that it would be represented as a political riot, an example of mobocracy, when politics had nothing to do with it. The affair did, however, stimulate legislative action, for in 1789 an act was passed "to prevent the odious practice of digging up and removing, for the purpose of dissection, dead Bodies interred in cemeteries or burial places." In this act, though, the desire was expressed that "science might not be injured .... by preventing the dissecting of proper subjects."

As a young physician, Dr. Valentine Mott was very zealous in resurrection adventures. He became the most famous surgeon of his day in America and more than any other teacher in this country impressed upon surgeons the importance of anatomy and continual dissecting. As "Demonstrator in Anatomy" to Dr. Wright Post, it was necessary that he supply most of the anatomic material. Dr. Mott recalled how on one occasion he was driving in disguise a cart containing eleven subjects taken from the old Potter's Field burying ground. He drove along sitting on the subjects, "proud enough of his trophies." He was not always so fortunate, for frequently he was discovered and pursued and obliged to leave the spoils behind, with only hard labor as a reward for his pains.

Once the body of a German, who had been hanged, was given to the College for dissection. In the evening Mott, with the colored porter, went by carriage to get the body. His associate, a Scottish physician, had agreed to accompany him, but only after much persuasion and after arranging his pistols and complaints of feeling "very agueish." The night was cold, and on arriving at the ground the doctor shook so violently that he decided to return home. He begged the use of the carriage, but Mott refused it. The body was exhumed with great difficulty. The porter now deserted Mott also, declaring that he could not touch the subject on account of his having been hanged. Mott was compelled to drag the body, attired in its white robe, to the carriage without assistance. By force and threats he then compelled the porter to assist him in getting the body into the carriage and to get in along with it. On arriving at the College, Mott found his associate recovering from the experience by the aid of a strong glass of brandy toddy and lamenting his inability to render any assistance.

Dr. Isaac Wood was another famous New York surgeon who ran grave risks to obtain subjects for dissection. Often he was obliged to cross the river into Long Island and travel for miles in order to dig up the body of some poor creature under cover of darkness. At times it was so cold that his companion, posted on the lookout, would have to run up and down to keep from freezing while Dr. Wood dug in the frozen ground. When at last the body was obtained, the grave covered up and smoothed over, the dead man wrapped in a cloak would be placed in a wagon. The doctor would drive some twelve miles back to town, the body by his side like some pale traveller.

On one occasion Isaac Wood went with two other students and obtained a body from Potter's Field. The subject was a small child and after tying its hands and feet together, Wood fastened it around his neck so as to be suspended in front. Throwing a large coat over all he walked arm in

Swarm in addition to the old, you'll say 'tis the way to have abler practitioners, it will help them no doubt, but bad enough (of Conscience) are the best we breed here. Another Obsticle stands in the way too, Sir James (Jay) who is their Mendicant at Home & has been very successful, propos'd a Branch of this kind of Education, but I don't find it relished at all, & tho' it might not serve him, it might disserve another, by throwing his Name & pretentions in the way, however we shall not be unmindful of the Doctor (Clossy) when any Nail will go."

When the medical school was established at Kings College in 1767, Doctor Clossy was appointed the first professor of anatomy and began a collection of anatomic specimens for teaching purposes.

With the outbreak of the Revolutionary War the school closed, and during the British occupation Dr. Clossy taught anatomy to the British army surgeons stationed in the military hospitals in New York. At the close of the war he returned to London where he spent his remaining years among his Tory friends.

After the conclusion of the war attempts were made to re-establish medical teaching at Kings College, now known as Columbia. In 1877, Dr. Richard Bayley started lecturing on surgery while his son-in-law lectured on anatomy, using rooms in the unoccupied New York Hospital where an anatomic museum was established. During the war Bayley had served as a surgeon in the English army and was in charge of a hospital at Newport, Rhode Island, for a time. No sooner had he started his course than objection to him was made by some of his contemporaries who circulated a report that during his stay at Newport he was in the habit "of cutting up his patients, and performing cruel experiments upon the sick soldiery."

The zeal of the medical students in supplying anatomic material for Dr. Bayley's class caused the free Negroes and slaves to petition the common council on February 4, 1788, in the following memorial in which they: "MOST HUMBLY SHEWETH—That it hath lately been the constant Practice of a Number of Young Gentlemen in this City who called themselves Students of Physick, to repair to the Burying Ground assigned for the Use of your Petitioners, and under cover of the Night, and in the most wanton Sallies of Excess, to dig up the Bodies of the deceased friends & relatives of your Petitioners, carry them away and without respect to Age or Sex, mangle their flesh out of a wanton Curiosity and then expose it to Beasts & Birds.

"That your Petitioners are well aware of the Necessity of Physicians & Surgeons consulting dead Subjects for the Benefit of Mankind, and far from presupposing it an injury to the Deceased, in particular Circumstances and when conducted with that decency and propriety which the Solemnity of such an Occasion requires Your Petitioners most humbly pray your Honors to take their case into Consideration, and adopt such Measures as may seem meet to prevent similar Abuses in future."

An anonymous letter now appeared in the *Daily Advertiser*, complaining of the scandalous treatment of the repositories of the dead by body snatchers who were making a "merchandize of human bones."

A few days later people were shocked to read the following notice in the same paper:

"ONE HUNDRED DOLLARS REWARD.

"Whereas one night last week the grave of a person recently interred in Trinity Church Yard was opened, and the Corpse, with part of the cloaths were carried off. Any person who will discover the offenders, so that they may be convicted and brought to justice, will receive the above reward from the Corporation of Trinity Church.

"By Order of the Vestry
ROBERT C. LIVINGSTON, Treas."

A letter next appeared, signed "a Student of Physic," which defended the practice of grave robbing as essential to the advance of medicine and asserting that in removing bodies "the greatest secrecy has been studied, the greatest regard paid to decency in the conduct of this business." The anonymous writer of the protest he named "Humanio."

Humanio promptly replied to Mr. Abductio, as he called the student of physic, warning him and his rash companions that "they may not alone suffer an abduction of their wealth, but perhaps their lives may be the forfeit of their temerity, should they dare to persist in their robberies, especially at unlawful hours of night."

The matter of grave robbing suddenly came to a climax with an outbreak of popular indignation known as the "Doctor's Riot" or the "Doctors' Mob Affair." A more appropriate title, as Ball points out, would have been "The Doctors' Mobbed" or "The Mobbed Doctors." This was the third great riot that had occurred in the history of New York, the first being the Negro Riot in 1712, and the second the Stamp Riot in 1765.

On April 13, 1788, a number of boys who were playing in the rear of the hospital perceived a limb which was imprudently hung out a window. They informed persons they met. A mob collected. They determined to search the house of the doctors for bodies. The first house they visited was that of Dr. Cochrane, nearly opposite

John Collins Warren tells us that when he and his father opened a dissecting room in Boston in 1806, a large supply of bodies for dissection was obtained for some years. As the number of medical schools increased throughout New England, however, the supply diminished and it became necessary to resort to the City of New York for bodies "at a great expense of money, and great hazzard of being discovered." The price for bodies obtained from New York was twenty-five dollars.

The practice of body snatching is probably a thing of the past. If at the present time there are no hindrances to anatomic study, it is because the medical profession has so improved its educational and scientific standards that the State and its citizens no longer question the propriety and need of dissection.

FOUNDATION FOR TROPICAL MEDICINE MAKES GRANTS

For the six-month period ending June 30, 1943, twelve grants amounting to $43,680 were made by the American Foundation for Tropical Medicine, Inc., to eleven North American medical schools, a scientific journal, and the Army Medical Museum, it was reported by Dr. Jean A. Curran, executive director, at a meeting of the Executive Committee of the Board of Trustees in New York City on July 23.

These grants, made possible by contributions and pledges for the current year of $66,600 by twenty-one American corporations, are being used to strengthen teaching and research programs in tropical medicine and parasitology at the various schools. The approved projects were selected by the medical committee from a number of applications.

Medical schools to receive grants during the period from April 1 to June 30 were: Cornell University Medical College, Duke University School of Medicine, University of Pennsylvania School of Medicine, and Stanford University Medical School. The *Journal of Parasitology* was also aided.

Schools of medicine to which grants were made available during the first quarter of 1943 were: New York University College of Medicine, Tufts College Medical School, Tulane University School of Medicine, University of Manitoba Faculty of Medicine, University of Nebraska College of Medicine, and Yale University School of Medicine.

Companies which have made contributions or formal pledges of support include: Abbott Laboratories; American Cyanamid Company; Ciba Pharmaceutical Products Corp.; Firestone Plantations Company; General Foods Corporation, Hoffmann-La Roche, Inc.; The Lambert Company; Lederle Laboratories; Eli Lilly and Company; Merck & Co., Inc.; National Carbon Company; Parke, Davis and Company; E. R. Squibb & Sons; The Texas Company; United Fruit Company; William R. Warner & Company; Winthrop Chemical Company; Winthrop Products, Inc.; and John Wyeth & Brother.

The Foundation acted as the administrative agency for a special grant from the John and Mary R. Markle Foundation, Dr. Curran reported.

The executive director stated that other applications are pending, and those recommended for approval by the Medical Committee will be financed out of contributions. Dr. Curran pointed out that additional gifts would be needed to finance the Foundation's full program for the year 1943.

This program, adopted at the annual meeting of members in January, calls for the collection and disbursement of $100,000 among medical schools and scientific journals and for special projects which fall within the scope of the Foundation's activities.

At the meeting on July 23, Mrs. C. James Attarian was named assistant secretary of the Foundation.

The officers of the Foundation are: president, Lt. Col. Thomas T. Mackie, director, Division of Parasitology and Tropical Medicine, and executive officer, Course in Tropical and Military Medicine, Army Medical School; vice-president, Dr. Willard C. Rappleye, dean, College of Physicians and Surgeons, Columbia University; secretary, Mr. Alfred R. Crawford, assistant to the president, Long Island College of Medicine; treasurer, Mr. W. W. Lancaster, partner, Shearman and Sterling; and executive director, Dr. J. A. Curran, president and dean, Long Island College of Medicine.

Members of the executive committee, in addition to the above officers, are: Dr. Theodore G. Klumpp, president, Winthrop Chemical Company, Inc., and Dr. Henry E. Meleney, professor of preventive medicine, New York University College of Medicine.

The purposes for which the funds granted during the second quarter of 1943 are being utilized are as follows:

Army Medical Museum—To finance the collection of tropical pathologic material and its distribution to American medical colleges.

Cornell University Medical College—Salary aid for full-time instructor in parasitic diseases and to purchase materials for teaching and research.

Duke University School of Medicine—For full-time technician, materials, and supplies to establish an identification and distribution center for pathogenic fungi and to maintain a registry of autopsy and biopsy material from cases of fungus disease.

University of Pennsylvania School of Medicine—Salary aid to finance expansion of teaching in parasitology and tropical diseases.

Stanford University Medical School—Salary for full-time technician and funds to purchase supplies and equipment to strengthen teaching of tropical medicine.

Journal of Parasitology—To supplement the publication funds of the *Journal* to permit enlarged type pages.

arm with his two friends down Broadway, passing within three yards of the night watchman, who took them to be gay youths returning from a party. On two occasions Wood was forced to flee from the city until excitement died down.

As new medical schools sprang up in the city, obtaining bodies for dissection ceased to be an amateur sport carried on by doctors themselves. A professional class of body snatchers or resurrectionists sprang up. These people violated graves with impunity, and some grew rich. The strongest vault or tomb afforded no security, for the body stealer was armed with a key to fit its lock.

New York City provided the best market, but with the advent of railroads some bodies were exported to supply the wants of schools elsewhere. Rumors would get abroad that resurrectionists were active, and for a time graveyards would be guarded by angry relatives armed with shotguns.

In the first annual announcement of the medical department of the University of New York in 1841, the importance of practical anatomy was stressed and the facilities for dissection set forth.

"Every effort has been made by the professors to afford to their students the best facilities for dissection, and they hazard nothing in saying that they are unequalled in this country. No city in the Union furnishes the same supply of the *materiel* for the study of practical Anatomy, as the City of New York. Indeed, it is a fact of notoriety, that a considerable part of the supply required in the dissecting-rooms of Philadelphia has heretofore been obtained from New York; and a number of other medical schools in the country are mainly dependent on her, even for those subjects required for the illustration of their anatomical lectures."

Charge was made in January, 1848, by Alderman G. H. Purse "that the corpse of a person who died at Bellevue was secretly removed downtown and offered to one or more surgeons for purposes of dissection." The Alderman also charged "that the said corpse was furnished by and with consent of Dr. Reese, resident Physician at Bellevue." One Nicholas, "the Keeper of the dead house, but now a fugitive," was named as deriving "a revenue from this source," the price for corpses "being fixed by the said resident Physician at Five Dollars."

A special committee was appointed by the Board of Aldermen to investigate the charges in relation to "the sale or disposal of dead bodies from Bellevue" and reported on September 6, 1848, "that they have given diligent attention to the subject referred to them, and after full investigation, the majority concur in the opinion, that the charges set forth in the accusation against Dr. Reese, resident Physician at the Bellevue Hospital and Alms House, are entirely unfound."

The necessity for obtaining bodies by the devious methods of the resurrectionists had become quite intolerable, for at this time in the City of New York and the surrounding country not less than six or seven hundred new-made graves were annually robbed of their tenants. Zealous doctors were said to be in the habit of attending the funeral of some immigrant to find out what he died of and where he was buried; after nightfall the body would disappear from the grave.

It was apparent to the medical profession that legislative action was necessary.

The honor of obtaining the legalization of dissection of the human body in the State of New York belongs to the faculty of the Medical College of New York University. In 1853, a "Petition of the Medical Faculty of the University of New York to the Honorable the Senate and Assembly of the State of New York, for The Legalization of Anatomy" was made. At the same time Dr. John W. Draper, then President of the medical faculty, issued "An Appeal to the People of the State of New York, to Legalise the Dissection of the Dead." He based his plea on broad humanitarian grounds, pointing out that the opening up of the western territories meant that a great many surgeons and physicians would be needed there and that these doctors should be well trained. Finally, a bill was introduced into the State Legislature "For the Promotion of Medical Science." The German and Irish Emigrant Societies remonstrated against handing over for dissection the bodies of the foreign population they represented. The Board of Councilmen of the City urged in a printed protest that the Representatives in the Legislature oppose by every means the passage of any bill legalizing dissection of dead bodies. Dr. Martyn Paine spent three months in Albany fighting for the measure and as the result of his endeavors "The Bone Bill," as it was commonly called, was passed in 1854.

Probably the last occasion on which charges of body snatching were made was as late as March 15, 1922. The secretary of the State Board of Examiners charged in a report that bodies taken to the city mortuary had been illegally turned over for the use of students of "naturopathy" and of a teacher of anatomy employed by those students. The report was made with the request of the State Department of Education for an inquiry by the district attorney and the chief city magistrate into the illegal practices by chiropractic and other schools whose graduates were accused of practicing in violation of the law.

many barbiturate preparations used has caused fatal poisoning. Any one of them, if the dose is large enough, may prove fatal.

Some very unusual cases of barbiturate poisoning have been observed. Not in every case does the patient survive in coma for any length of time. While it is true that in the average case the victim survives more than twenty-four hours, there have been cases in which death has been so rapid after the ingestion of a large amount of barbiturate that some other kind of poison was suspected of being responsible for the death; in these cases the toxicologic analysis revealed only the barbiturate.

I should like to tell about two such cases. In one a mentally depressed, middle-aged woman locked herself in the bathroom. Her maid, knowing that she was not well, became worried and suspicious when she did not come out after a few minutes. The woman refused to open the door at the request of the maid, who then went out to call the superintendent of the building. Together they came back and forced the door. This took about ten or fifteen minutes. The woman was found dead. In all, this death occurred in less than half an hour. The autopsy revealed a marked hyperemia of the gastric mucosa almost like a real corrosion, such as one sees in cyanide poisoning. The toxicologic examination revealed a considerable amount of medinal or sodium barbital in the stomach. This barbiturate, by reason of its strong alkaline reaction, produced the intense hyperemia of the gastric mucosa. The rapidity of the death gave reason to believe that the barbiturate was absorbed directly by the hyperemic stomach mucosa. The microscopic examination of the stomach did not reveal any corrosion but only an intense hyperemia of the mucosa.

Only recently there was another somewhat similar case which came to our attention. A 30-year-old white woman, a nurse, who lived in a residential hotel, was known to have had some indefinite complaints for which she was receiving, under the care of a physician, various types of medication including hypodermic injections. The doctor later admitted that there was nothing organically wrong with the patient and that he considered her neurotic and had been medicating her symptomatically with a variety of glandular preparations and sedatives.

This girl went to the swimming pool of the hotel and sat down on the edge of the pool with her feet hanging down into the water. She asked for a drink of water, which was brought to her, and then she collapsed. Within a few minutes she was dead, despite attempts to resuscitate her. She was not submerged. The autopsy findings were the same as in the previous case—namely, an intense hyperemia of the gastric mucosa and the presence in the stomach, as determined toxicologically, and also in the brain and liver, of a barbiturate compound. This must have been ingested by the deceased just before she reached the pool or while she was sitting on the edge of the pool. The rapidity of her collapse and death indicated this. Fortunately the case was not complicated by submersion, which also may have been in the deceased's mind. A number of suicidal drownings have revealed the presence of barbiturates in the stomach.

These two cases prove that death from barbiturate poisoning can occur very rapidly, especially when the more soluble compounds are taken.

The postmortem findings in fatal cases vary considerably. Persons who die after having been in coma for a considerable period of time show usually, in addition to the congestion of all the viscera, an extensive hypostatic bronchopneumonia. Aside from this, there is nothing characteristic about the autopsy findings. In two fatal suicidal cases which occurred several years apart and in which the victims survived in coma for four days, autopsy revealed the very interesting brain lesion usually found in delayed deaths from carbon monoxide poisoning—namely, bilateral symmetric necrosis of the globus pallidus. This is a very rare finding in barbiturate poisoning, although another case was recorded in the literature about two years ago by De Groat.

In connection with the management of live cases, I do not wish to encroach upon Dr. Gold's presentation, but I do want to say that in all cases of barbiturate poisoning the diagnosis can be readily confirmed by the toxicologist if the urine is saved for chemical examination. Most of the barbiturates are excreted in the urine very promptly, so that the urine should be saved for analysis in all suspected cases and even in cases in which the diagnosis is certain, for medicolegal reasons. If the stomach is washed out, the washings should be inspected for the presence of incompletely disintegrated tablets and saved for toxicologic examination. It is not uncommon to find partially disintegrated tablets of barbiturate in the stomach at autopsy.

I recall one case in which I counted more than 100 tablets of phenobarbital in the stomach and small intestine. They were only partially disintegrated. In other cases, one finds a whitish paste of barbiturate loosely adherent to the mucous membrane, the remains of a thick suspension of many tablets prepared by and swallowed by the victim. The presence of a large amount of barbiturate in the stomach in the form of tablets or as a suspension disproves the claim of an

Therapeutics

CONFERENCES ON THERAPY

THESE are stenographic reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments and institutions. The questions and discussions involve participation by members of the staff of the College and Hospital, students, and visitors. The next report will appear in the November 1 issue and will concern "Treatment of Lead Poisoning."

Treatment of Poisoning by the Barbiturates

DR. MCKEEN CATTELL: This conference is the second of a series which we have planned on drug poisoning and its treatment.

The discussion this morning is on the barbiturates and will be opened by Dr. Helpern.

DR. MILTON HELPERN: The subject of barbiturate poisoning is very interesting and very important. The statistics of the Chief Medical Examiner's Office,* which are compiled annually, show a definite increase in the number of fatal poisonings by the various barbiturate compounds. I have looked up the incidence of fatal barbiturate poisoning for the past ten years. At present it is second only to carbon monoxide poisoning. In 1935, there were 33 cases of barbiturate poisoning as compared with 40 cases of cyanide poisoning. In 1936 the barbiturates overtook the cyanides in frequency. In 1940, there were 45 deaths from barbiturates and only 13 cyanide poisonings. Fatal barbiturate poisonings have almost doubled in the past ten years.

Most of the deaths from barbiturates are suicides. In the statistical reports of the Medical Examiner's Office, many of the deaths from barbiturate poisoning—and from other types of poisoning, too—are listed in the "accidental and undetermined" group. Besides the accidental cases, this group includes, as undetermined, those cases which may have been suicidal, or, for that matter, even homicidal, because the evidence of suicide or homicide is not clear. It is very probable that many cases which we are forced, because of insufficient evidence, to classify finally as undetermined are suicidal. There are a few instances in which an alcoholic individual has taken a large dose of barbiturates, and it is questionable whether or not, although the act was deliberate, the intent was that of suicide. The question is debatable.

In most suicidal cases, the individual takes barbiturate medication which has already been prescribed for him. There seems to be a rather indiscriminate or careless prescribing of barbiturate compounds for patients who are suffering from chronic alcoholism, nervous disorders, and depressions, the same conditions which may prompt such patients to take a suicidal overdose. It would seem that something should be done to discourage the indiscriminate prescribing of the barbiturates. The patient should not be given or allowed to accumulate an amount of barbiturate which if taken at one time would be sufficient to cause death. At present a person so inclined does not seem to have any trouble at all piling up a reserve of barbiturate which is conveniently available when the suicidal impulse arises. It is amazing what large quantities of barbiturate may be found in the possession of, or are available to, patients—amounts which are far in excess of legitimate medicinal needs. Only enough barbiturate should be prescribed as is reasonably necessary, and patients should not be permitted to accumulate amounts that would allow deliberate serious overdosage.

As for the types of fatal cases of barbiturate poisoning, we encounter them in various forms. Many of the patients are found dead, and not much is known about the duration of the period of coma which preceded death. In other cases, the patient is immediately removed to the hospital after the ingestion of a large amount of one or another of the barbiturate compounds, and may survive in coma for a varying period of time and then die. The period of survival may vary from a few hours to eight days. The particular barbiturate compound taken is variable in the cases which come to our attention. It is most commonly the compound that is most in vogue at the time. New ones continue to appear, but they have the same lethal effect when a large amount is ingested.

In former days, veronal (barbital) was the most common of the barbiturates responsible for fatal poisoning. Now we encounter a great variety of barbiturate compounds including phenobarbital, nembutal, amytal, medinal, and allonal. It is fair to say that every one of the

* Annual Reports of the Office of the Chief Medical Examiner, City of New York.

many barbiturate preparations used has caused fatal poisoning. Any one of them, if the dose is large enough, may prove fatal.

Some very unusual cases of barbiturate poisoning have been observed. Not in every case does the patient survive in coma for any length of time. While it is true that in the average case the victim survives more than twenty-four hours, there have been cases in which death has been so rapid after the ingestion of a large amount of barbiturate that some other kind of poison was suspected of being responsible for the death; in these cases the toxicologic analysis revealed only the barbiturate.

I should like to tell about two such cases. In one a mentally depressed, middle-aged woman locked herself in the bathroom. Her maid, knowing that she was not well, became worried and suspicious when she did not come out after a few minutes. The woman refused to open the door at the request of the maid, who then went out to call the superintendent of the building. Together they came back and forced the door. This took about ten or fifteen minutes. The woman was found dead. In all, this death occurred in less than half an hour. The autopsy revealed a marked hyperemia of the gastric mucosa almost like a real corrosion, such as one sees in cyanide poisoning. The toxicologic examination revealed a considerable amount of medinal or sodium barbital in the stomach. This barbiturate, by reason of its strong alkaline reaction, produced the intense hyperemia of the gastric mucosa. The rapidity of the death gave reason to believe that the barbiturate was absorbed directly by the hyperemic stomach mucosa. The microscopic examination of the stomach did not reveal any corrosion but only an intense hyperemia of the mucosa.

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I recall one case in which I counted more than 100 tablets of phenobarbital in the stomach and small intestine. They were only partially disintegrated. In other cases, one finds a whitish paste of barbiturate loosely adherent to the mucous membrane, the remains of a thick suspension of many tablets prepared by and swallowed by the victim. The presence of a large amount of barbiturate in the stomach in the form of tablets or as a suspension disproves the claim of an

accidental overdosing by slightly more than the medicinal dose.

In fatal cases of barbiturate poisoning it is necessary to send to the toxicologist for examination not only the urine but also the brain, liver, and contents of the stomach. I should like to state the amounts of barbiturate quantitatively recovered by Dr. Gettler, toxicologist to the office of the Chief Medical Examiner, from the organs in cases of barbiturate poisoning. In one patient who survived for two hours—a 43-year-old man—there were 23.2 mg. in 1,000 Gm. of liver. In another case in which the individual survived for three hours, there were 56 mg. in 1,000 Gm. of liver and large amounts were found in the stomach. In the case of the 57-year-old man who survived for four days, in whom the symmetric softening of the globus pallidus was found, the brain contained 43.6 mg. in 1,000 Gm., and the liver contained 37.8 mg. in 1,000 Gm. The stomach contained 31.5 Gm., recovered from the washings during life, and the urine during life contained 25 mg. in 250 cc. Then there was another victim who survived for eight days in coma and whose liver contained 17.6 mg. in 1,000 Gm. Although the amounts in the organs vary considerably in fatal cases, appreciable amounts of barbiturate can be recovered after variable periods of survival.

DR. CATTELL: We might perhaps spend a few minutes in discussion on this aspect of the presentation. Have you questions for Dr. Helpern?

DR. C. H. WHEELER: Dr. Helpern, have you any idea how many patients recover after taking the drug accidentally or with suicidal intent?

DR. HELPERN: I am sorry, but I do not have any figures to answer that question. The only way to get such data is to comb the hospitals, and also to send questionnaires to the doctors because many such cases never get to the hospitals. The hospital cases, of course, are available for analysis. It is unfortunate that there is no central agency where all these non-fatal poisonings are recorded. It is not requisite for a doctor to report an attempted suicide if the attempt is not successful. There are many non-fatal cases that we know nothing about.

DR. HARRY GOLD: I should like to ask Dr. Helpern a question relating to the figure he mentioned—namely, the 23 mg. of barbiturate per kilogram of tissue in a fatal case. The drug is, of course, not equally distributed, but if it were in such a case, then an average-sized man would have about 1.6 Gm. of barbiturate. That is not enough to cause serious poisoning. How does one go about establishing that he died of barbiturate poisoning?

DR. HELPERN: First by considering it as a possibility, by the clinical history if it is available, by the exclusion at autopsy of other causes of death which would take precedence—for example, a subarachnoid hemorrhage or a pontine hemorrhage or other necessarily fatal condition, such as a ruptured aneurysm of the aorta or ruptured viscus with peritonitis or a bullet wound through the brain or heart. Taking into consideration the period of survival and in the absence of another cause of death, other than a secondary bronchopneumonia, the finding of barbiturates in the organs in significant amount would be sufficient to establish the cause of death as barbiturate poisoning. The individual may survive long enough for almost all of the barbiturate to be eliminated, and death may then occur from exhaustion and bronchopneumonia. In such a case, despite negative toxicologic findings at autopsy, the death should be attributed to barbiturate poisoning. The correct cause of death cannot always be ascertained from the body at an autopsy. Other circumstances help to determine it. By the same token, the presence in the body before death or at autopsy of a barbiturate does not necessarily establish the cause of death as barbiturate poisoning. The same may be said for other types of poisoning. For example, many persons die of carbon monoxide poisoning long after the carbon monoxide has been eliminated from the blood. Although the symmetric softening of the globus pallidus is a very suggestive lesion in such delayed deaths, one has to be guided by clinical history or by circumstances surrounding the case in deciding the cause of death. That is why it is so important, from the medicolegal standpoint, to have toxicologic analyses made on blood in carbon monoxide cases as soon as possible after exposure, since the gas is rapidly eliminated, and also on the urine and stomach contents in barbiturate poisoning, and on the blood, stomach contents, spinal fluid, and even urine in cases of ethyl or methyl alcohol poisoning. Many poisons disappear rapidly from the body before death occurs.

DR. GOLD: The reason for my question is an actual case which recently came up in which the insurance company insisted that the man died as the result of suicide by barbiturate, and the family insisted that the barbiturate was an incidental finding, and that he died of an accident unrelated to the drug. They found in the body an amount of barbiturate of the order you mentioned, but the family maintained it was there because of his habitual use of large doses as a hypnotic.

DR. HELPERN: As far as determining whether a case is one of suicide or accident or even homicide—that can be done only by investigation of the circumstances surrounding the particular case. The autopsy will not reveal whether the

poisoning is suicidal or accidental unless large amounts of the barbiturates are found in the stomach as well as in the organs, which would mean an amount ingested far in excess of any alleged accidental overdose. When the drug has passed through the stomach and has been absorbed and when the individual survives for a period of time, the toxicologic analysis usually recorded in milligrams per kilogram of organ, such as brain or liver, must be subjected to considerable calculation based on body weight and variable distribution. The result that is obtained may be far below the actual amount ingested, the amount which is most significant in helping to decide, in the absence of other evidence, that the intent of the deceased was suicidal.

The distribution of barbiturates in the body is not uniform. The bones and muscles do not take up very much. The brain and liver contain the largest amounts.

Dr. Gettler is conducting investigations to see just how the barbiturates are partitioned in the various tissues. His laboratory is analyzing brain, liver, kidneys, blood, muscle, and bone in order to get some idea of what the entire body may contain.

DR. TRAVELL: Is there a concentration in any organ which is positive proof that death occurred as the result of barbiturate?

DR. HELPERN: No. The diagnosis of fatal barbiturate poisoning cannot be made from a chemical examination alone, no matter how much may be found in the liver or brain. The chemical analysis must be interpreted in the light of the autopsy findings. The same principle applies as in the interpretation of the amount of alcohol which may be found in the brain or liver. The amount found may indicate that death resulted from poisoning only in the absence of another necessarily fatal condition, or it may indicate a partial or contributory cause of death.

How does one decide that a man has died of acute alcoholism? It cannot be decided only by the finding of a 3 or 4 plus amount of alcohol in the brain. One must rule out other necessarily immediately fatal conditions which are unequivocal causes of death—for example, an aneurysm which has ruptured into the pericardial cavity or a massive cerebral hemorrhage or a severe traumatic injury or a bullet wound through a vital organ. A 3 or 4 plus amount of alcohol may indicate death from acute alcoholism in one man and may be merely an associated finding in another man who has received a fatal stab wound.

DR. CATTELL: I was wondering about the amounts of barbiturate recovered in those individuals who died quickly. Was that studied?

DR. HELPERN: I do not have the figures in the first case, but I recall that a large amount was found. In the second case, curiously, a large amount was not recovered. There were 30 mg. of barbiturate per Kg. of brain and 35 mg. per Kg. of kidney.

DR. GOLD: How long did she live after taking the drug?

DR. HELPERN: All we know is that she came to the swimming pool, sat down on the edge of the pool, and asked for a drink of water. Nobody saw her swallow the drug. She collapsed shortly after getting the glass of water and died within a few minutes. The lifeguard attempted to resuscitate her for an hour without success.

DR. GOLD: The drug was phenobarbital?

DR. HELPERN: The drug in this case was not identified in the toxicologic report. Dr. Gettler recorded it as "barbiturate." He did not actually state what the preparation was.

DR. CATTELL: Is the analysis of urine for barbiturates of any value in cases involving the more quickly acting barbiturates where the material is largely destroyed in the liver rather than excreted as such in the urine?

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There was an old man on the service a week or so ago who came in with a coronary thrombosis. He was very ill. He was restless, and the doctor began to give him amytal. In a period of about four hours he had the following doses of amytal sodium by intravenous injection: 4 grains, 2 grains, 1.78 grains, and 1.8 grains. This makes a total of approximately 10 grains of amytal sodium within a period of about four hours. He was

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DR. C. H. WHEELER: Dr. Helpern, have you any idea how many patients recover after taking the drug accidentally or with suicidal intent?

DR. HELPERN: I am sorry, but I do not have any figures to answer that question. The only way to get such data is to comb the hospitals, and also to send questionnaires to the doctors because many such cases never get to the hospitals. The hospital cases, of course, are available for analysis. It is unfortunate that there is no central agency where all these non-fatal poisonings are recorded. It is not requisite for a doctor to report an attempted suicide if the attempt is not successful. There are many non-fatal cases that we know nothing about.

DR. HARRY GOLD: I should like to ask Dr. Helpern a question relating to the figure he mentioned—namely, the 23 mg. of barbiturate per kilogram of tissue in a fatal case. The drug is, of course, not equally distributed, but if it were in such a case, then an average-sized man would have about 1.6 Gm. of barbiturate. That is not enough to cause serious poisoning. How does one go about establishing that he died of barbiturate poisoning?

DR. HELPERN: First by considering it as a possibility, by the clinical history if it is available, by the exclusion at autopsy of other causes of death which would take precedence—for example, a subarachnoid hemorrhage or a pontine hemorrhage or other necessarily fatal condition, such as a ruptured aneurysm of the aorta or ruptured viscus with peritonitis or a bullet wound through the brain or heart. Taking into consideration the period of survival and in the absence of another cause of death, other than a secondary bronchopneumonia, the finding of barbiturates in the organs in significant amount would be sufficient to establish the cause of death as barbiturate poisoning. The individual may survive long enough for almost all of the barbiturate to be eliminated, and death may then occur from exhaustion and bronchopneumonia. In such a case, despite negative toxicologic findings at autopsy, the death should be attributed to barbiturate poisoning. The correct cause of death cannot always be ascertained from the body at an autopsy. Other circumstances help to determine it. By the same token, the presence in the body before death or at autopsy of a barbiturate does not necessarily establish the cause of death as barbiturate poisoning. The same may be said for other types of poisoning. For example, many persons die of carbon monoxide poisoning long after the carbon monoxide has been eliminated from the blood. Although the symmetric softening of the globus pallidus is a very suggestive lesion in such delayed deaths, one has to be guided by clinical history or by circumstances surrounding the case in deciding the cause of death. That is why it is so important, from the medicolegal standpoint, to have toxicologic analyses made on blood in carbon monoxide cases as soon as possible after exposure, since the gas is rapidly eliminated, and also on the urine and stomach contents in barbiturate poisoning, and on the blood, stomach contents, spinal fluid, and even urine in cases of ethyl or methyl alcohol poisoning. Many poisons disappear rapidly from the body before death occurs.

DR. GOLD: The reason for my question is an actual case which recently came up in which the insurance company insisted that the man died as the result of suicide by barbiturate, and the family insisted that the barbiturate was an incidental finding, and that he died of an accident unrelated to the drug. They found in the body an amount of barbiturate of the order you mentioned, but the family maintained it was there because of his habitual use of large doses as a hypnotic.

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How does one decide that a man has died of acute alcoholism? It cannot be decided only by the finding of a 3 or 4 plus amount of alcohol in the brain. One must rule out other necessarily immediately fatal conditions which are unequivocal causes of death—for example, an aneurysm which has ruptured into the pericardial cavity or a massive cerebral hemorrhage or a severe traumatic injury or a bullet wound through a vital organ. A 3 or 4 plus amount of alcohol may indicate death from acute alcoholism in one man and may be merely an associated finding in another man who has received a fatal stab wound.

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These two cases are typical of mild poisoning by barbiturate which does not require treatment.

There are other cases of very severe poisoning in which, no matter what one does, the patient dies. About one out of every four patients with barbiturate poisoning who come into the hospital dies. Would that match any figures you have, Dr. Helpern?

DR. HELPERN: I do not have any figures, Dr. Gold.

DR. GOLD: How does a patient look who is poisoned by a barbiturate and who is likely to recover if he is properly treated? The patient is in coma, and the pupils are constricted. In barbiturate poisoning dilatation of the pupils is usually a terminal event. The skin and mucous membranes are cyanotic. The respiration is rapid and shallow, occasionally jerky. The pulse rate is usually rapid, 120 a minute or more. The blood pressure is likely to be low, the systolic around 100 mm. of mercury. All reflexes are gone. This is a picture of fairly advanced poisoning by the barbiturates.

There may be complicating factors. Often the patient develops a fever. The temperature may go as high as 105 F., although many patients with barbiturate poisoning have subnormal temperatures. Rales appear at the base of the lungs. The differential diagnosis has to be made between barbiturate poisoning and bronchopneumonia. Indeed, the patient may have both conditions because death in many of these cases results from terminal bronchopneumonia.

What is the mechanism of death in a patient who has had an overdose of barbiturate? The poison affects primarily the central nervous system. There is depression of the respiratory and vasomotor mechanism; there is also depression of the heart muscle directly. There is added the fact that in the patient who is narcotized with the barbiturate the tongue falls back against the pharynx and palate, giving rise to obstruction. Anoxia results, therefore, not only from the fact that the patient's respiratory mechanism is depressed and respiration is shallow, but also from the fact that obstruction in the air passage further diminishes respiratory exchange. Exposure is another complicating factor. The patient takes the drug and is apt to lie somewhere in coma for a long time before he is discovered. Therefore the problem in the treatment of a barbiturate poisoning involves not only the reversal of the direct action of the drug but also the management of a complex set of conditions which have been created by several secondary factors.

The first thing one does is to make sure that obstruction to breathing is removed. Bring the tongue and jaw forward; have them held in that position. "Swallowing" the tongue is a very important aspect in the cause of deaths from barbiturate poisoning. This was the cause of disasters in the use of fixed anesthetics in which the patient was anesthetized and then was allowed to carry on without supervision. Suddenly the respiration came to an end.

If the skin is cold and clammy and the temperature is low, wrap the patient in warm blankets and apply heating pads or hot-water bottles. Oxygen inhalation is important. If there are signs of circulatory failure, intravenous infusion of glucose in saline is useful. Many of these patients in deep coma have fairly normal blood pressure, and in them there is no reason for infusions; but if there are any signs of circulatory failure, infusions of a liter or two of 10 per cent glucose in saline, given slowly over a period of several hours, should be used.

There are several specific antidotes. Strychnine has been used and abandoned. Caffeine is widely used. Its value is questionable. Metrazol is now extensively employed. There is good experimental evidence of its value. The one which occupies the center of the stage at the present time is picrotoxin.

Picrotoxin is a stimulant of the central nervous system, which when given in large doses produces convulsions. There is mutual antagonism between picrotoxin and the barbiturate. The barbiturate causes depression and the picrotoxin abolishes it, and when convulsions from picrotoxin occur in the barbiturized animal, one can abolish the convulsions in turn by giving more barbiturate. There is a fairly sharp limit to this reversibility.

The preparation which is most commonly available contains 3 mg. per cc. It comes in 20

cc. ampules. The adult patient receives 10 mg. intravenously as the first dose. It is repeated at intervals of twenty minutes. With what in view? To produce a state of hyperexcitability in which there are mild convulsive movements, but very, very mild. A finger may flick, or a muscle of the face may suddenly contract, or an arm might show a sudden movement; but a generalized convulsion is to be avoided. The state of hyperexcitability is then maintained by repeated doses as necessary. Never try to restore consciousness. It is impossible to restore consciousness even with fatal convulsive doses. All one tries to do is to maintain a state of mild excitability sufficient to sustain life in order that the patient may be able to excrete the barbiturate.

The total amount of picrotoxin used is often very large. The dose of picrotoxin which may kill a normal man is about 2 to 3 grains, but in the treatment of barbiturate-poisoned patients, a total amount as high as 30 grains has been given.

In maintaining the state of hyperexcitability it may be necessary to raise the dose or to lower it. It may be necessary to lengthen the intervals. The patient is watched carefully. As the state of hyperexcitability begins to subside, additional doses are given, until signs of spontaneous clearing appear.

Why do we choose twenty-minute intervals between the early doses? Picrotoxin in large doses produces an almost instantaneous effect on the central nervous system. Smaller doses show a lag in the appearance of effects. Whereas 2 mg. of picrotoxin per Kg. injected intravenously into an animal will cause death within a minute or two, 0.5 mg. will cause symptoms only after a delay, often as much as twenty or twenty-five minutes, and death may occur within an hour or so.

DR. CATTELL: We are now ready for questions or comments from the group.

STUDENT: I should like to know how long it takes for the barbiturates to be absorbed and how useful is gastric lavage in relation to the time after the drug has been ingested. What effect would purgatives have on the absorption of the drug? I should also like to know whether several liters of 5 per cent glucose would help in the elimination of the drug.

DR. CATTELL: Dr. Helpern's experience with these two cases illustrates the speed with which absorption can occur.

DR. GOLD: The barbiturates are absorbed fairly rapidly. A fatal dose of one of the soluble sodium salts of a barbiturate, such as sodium pentobarbital, will narcotize an animal within ten to fifteen minutes. That is pretty fast. The insoluble acids are more slowly absorbed. Barbital is fairly slowly absorbed; it is usually a matter of three-quarters of an hour or an hour, but sodium barbital is very rapidly absorbed. Massive intravenous infusions are not very effective in promoting excretion. For most of the barbiturates the urinary excretion is small; destruction in the liver and other tissues is the chief mode of elimination. It is only in the case of barbital alone that urinary excretion plays a considerable part, and there the experimental evidence of Koppanyi and his collaborators is that massive infusions seem to affect recovery very little.

DR. CATTELL: There is one aspect of poisoning by the barbiturates which we have not touched upon—that is, chronic poisoning, the type that the psychiatrists see. I wonder if Dr. Doty would comment on this phase of the subject.

DR. EDWIN J. DOTY: I might first speak of the incidence of psychoses due to drugs. It is estimated that from 0.3 to 1 per cent of all admissions to mental hospitals are diagnosed as psychoses due to drugs. Most of these illnesses have a short duration and patients are not admitted to psychiatric hospitals.

Our experience I might summarize briefly. During the past four years we have had an average of three such cases a year at the yearly admission rate of 250 patients. If one kept a count of the psychoses which are due to barbiturates, he would find that about one out of these three admissions would be due to barbiturates alone. It is often difficult to determine whether the barbiturate was taken with alcohol or with bromides or some other sedative medication.

In a series of 124 cases reported from the Boston Psychopathic Hospital the ratio was about the same—that is, there were 32 of these cases of drug psychoses due to barbiturates alone.

Dr. Frank Curran studied 50 cases in Bellevue Hospital. He stated that in 48 per cent the chronic use of barbiturates was associated with chronic alcoholism. In the remaining cases it was found in patients who complained of difficulties associated with the menopause, marital difficulties, insomnia, or psychoneurotic symptoms.

There are two types of intoxication, the acute and the chronic. In the acute case a very large dose is often taken with suicidal intent. The chronic use is frequent in such situations when there is chronic alcoholism or when there are physical complaints or psychoneurotic features. The acute and chronic intoxications are often difficult to differentiate from the clinical standpoint. With acute intoxication, consciousness may be disturbed in varying degrees from drowsiness to coma. In the noncomatose patient the outstanding psychopathologic features

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What is the mechanism of death in a patient who has had an overdose of barbiturate? The poison affects primarily the central nervous system. There is depression of the respiratory and vasomotor mechanism; there is also depression of the heart muscle directly. There is added the fact that in the patient who is narcotized with the barbiturate the tongue falls back against the pharynx and palate, giving rise to obstruction. Anoxia results, therefore, not only from the fact that the patient's respiratory mechanism is depressed and respiration is shallow, but also from the fact that obstruction in the air passage further diminishes respiratory exchange. Exposure is another complicating factor. The patient takes the drug and is apt to lie somewhere in coma for a long time before he is discovered. Therefore the problem in the treatment of a barbiturate poisoning involves not only the reversal of the direct action of the drug but also the management of a complex set of conditions which have been created by several secondary factors.

The first thing one does is to make sure that obstruction to breathing is removed. Bring the tongue and jaw forward; have them held in that position. "Swallowing" the tongue is a very important aspect in the cause of deaths from barbiturate poisoning. This was the cause of disasters in the use of fixed anesthetics in which the patient was anesthetized and then was allowed to carry on without supervision. Suddenly the respiration came to an end.

If the skin is cold and clammy and the temperature is low, wrap the patient in warm blankets and apply heating pads or hot-water bottles. Oxygen inhalation is important. If there are signs of circulatory failure, intravenous infusion of glucose in saline is useful. Many of these patients in deep coma have fairly normal blood pressure, and in them there is no reason for infusions; but if there are any signs of circulatory failure, infusions of a liter or two of 10 per cent glucose in saline, given slowly over a period of several hours, should be used.

There are several specific antidotes. Strychnine has been used and abandoned. Caffeine is widely used. Its value is questionable. Metrazol is now extensively employed. There is good experimental evidence of its value. The one which occupies the center of the stage at the present time is picrotoxin.

Picrotoxin is a stimulant of the central nervous system, which when given in large doses produces convulsions. There is mutual antagonism between picrotoxin and the barbiturate. The barbiturate causes depression and the picrotoxin abolishes it, and when convulsions from picrotoxin occur in the barbiturized animal, one can abolish the convulsions in turn by giving more barbiturate. There is a fairly sharp limit to this reversibility.

The preparation which is most commonly available contains 3 mg. per cc. It comes in 20

cc. ampules. The adult patient receives 10 mg. intravenously as the first dose. It is repeated at intervals of twenty minutes. With what in view? To produce a state of hyperexcitability in which there are mild convulsive movements, but very, very mild. A finger may flick, or a muscle of the face may suddenly contract, or an arm might show a sudden movement; but a generalized convulsion is to be avoided. The state of hyperexcitability is then maintained by repeated doses as necessary. Never try to restore consciousness. It is impossible to restore consciousness even with fatal convulsive doses. All one tries to do is to maintain a state of mild excitability sufficient to sustain life in order that the patient may be able to excrete the barbiturate.

The total amount of picrotoxin used is often very large. The dose of picrotoxin which may kill a normal man is about 2 to 3 grains, but in the treatment of barbiturate-poisoned patients, a total amount as high as 30 grains has been given.

In maintaining the state of hyperexcitability it may be necessary to raise the dose or to lower it. It may be necessary to lengthen the intervals. The patient is watched carefully. As the state of hyperexcitability begins to subside, additional doses are given, until signs of spontaneous clearing appear.

Why do we choose twenty-minute intervals between the early doses? Picrotoxin in large doses produces an almost instantaneous effect on the central nervous system. Smaller doses show a lag in the appearance of effects. Whereas 2 mg. of picrotoxin per Kg. injected intravenously into an animal will cause death within a minute or two, 0.5 mg. will cause symptoms only after a delay, often as much as twenty or twenty-five minutes, and death may occur within an hour or so.

DR. CATTELL: We are now ready for questions or comments from the group.

STUDENT: I should like to know how long it takes for the barbiturates to be absorbed and how useful is gastric lavage in relation to the time after the drug has been ingested. What effect would purgatives have on the absorption of the drug? I should also like to know whether several liters of 5 per cent glucose would help in the elimination of the drug.

DR. CATTELL: Dr. Helpern's experience with these two cases illustrates the speed with which absorption can occur.

DR. GOLD: The barbiturates are absorbed fairly rapidly. A fatal dose of one of the soluble sodium salts of a barbiturate, such as sodium pentobarbital, will narcotize an animal within ten to fifteen minutes. That is pretty fast. The insoluble acids are more slowly absorbed. Barbital is fairly slowly absorbed; it is usually a matter of three-quarters of an hour or an hour, but sodium barbital is very rapidly absorbed. Massive intravenous infusions are not very effective in promoting excretion. For most of the barbiturates the urinary excretion is small; destruction in the liver and other tissues is the chief mode of elimination. It is only in the case of barbital alone that urinary excretion plays a considerable part, and there the experimental evidence of Koppanyi and his collaborators is that massive infusions seem to affect recovery very little.

DR. CATTELL: There is one aspect of poisoning by the barbiturates which we have not touched upon—that is, chronic poisoning, the type that the psychiatrists see. I wonder if Dr. Doty would comment on this phase of the subject.

DR. EDWIN J. DOTY: I might first speak of the incidence of psychoses due to drugs. It is estimated that from 0.3 to 1 per cent of all admissions to mental hospitals are diagnosed as psychoses due to drugs. Most of these illnesses have a short duration and patients are not admitted to psychiatric hospitals.

Our experience I might summarize briefly. During the past four years we have had an average of three such cases a year at the yearly admission rate of 250 patients. If one kept a count of the psychoses which are due to barbiturates, he would find that about one out of these three admissions would be due to barbiturates alone. It is often difficult to determine whether the barbiturate was taken with alcohol or with bromides or some other sedative medication.

In a series of 124 cases reported from the Boston Psychopathic Hospital the ratio was about the same—that is, there were 32 of these cases of drug psychoses due to barbiturates alone.

Dr. Frank Curran studied 50 cases in Bellevue Hospital. He stated that in 48 per cent the chronic use of barbiturates was associated with chronic alcoholism. In the remaining cases it was found in patients who complained of difficulties associated with the menopause, marital difficulties, insomnia, or psychoneurotic symptoms.

There are two types of intoxication, the acute and the chronic. In the acute case a very large dose is often taken with suicidal intent. The chronic use is frequent in such situations when there is chronic alcoholism or when there are physical complaints or psychoneurotic features. The acute and chronic intoxications are often difficult to differentiate from the clinical standpoint. With acute intoxication, consciousness may be disturbed in varying degrees from drowsiness to coma. In the noncomatose patient the outstanding psychopathologic features

poisoned. When he lapsed into coma, attention was turned from the treatment of the coronary thrombosis to the use of stimulants for the treatment of barbiturate poisoning. That was a mistake. From doses of that order or from that degree of poisoning, patients recover without any treatment. Not so long ago I observed another old man, who had an upper respiratory infection. He had some fever and could not sleep well. A standing order for phenobarbital was left. He received it every two hours to put him to sleep, and about 9:00 A.M., when the doctor came, he was in coma. His pupils were constricted and his eyes rolled. There was the question whether or not the patient had suffered a cerebral accident during the night. It turned out to be only poisoning by a barbiturate used in excessive doses for insomnia. This was a typical case which did not need treatment. He needed only to be left alone until he eliminated enough of the drug to enable him to wake up.

These two cases are typical of mild poisoning by barbiturate which does not require treatment.

There are other cases of very severe poisoning in which, no matter what one does, the patient dies. About one out of every four patients with barbiturate poisoning who come into the hospital dies. Would that match any figures you have, Dr. Helpern?

DR. HELPERN: I do not have any figures, Dr. Gold.

DR. GOLD: How does a patient look who is poisoned by a barbiturate and who is likely to recover if he is properly treated? The patient is in coma, and the pupils are constricted. In barbiturate poisoning dilatation of the pupils is usually a terminal event. The skin and mucous membranes are cyanotic. The respiration is rapid and shallow, occasionally jerky. The pulse rate is usually rapid, 120 a minute or more. The blood pressure is likely to be low, the systolic around 100 mm. of mercury. All reflexes are gone. This is a picture of fairly advanced poisoning by the barbiturates.

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The barbiturates are responsible for about one-third of the cases of drug psychosis admitted to this hospital. Chronic barbiturate poisoning is frequently associated with chronic alcoholism and personality disorders. In the absence of coma, these cases present a variety of symptoms such as delirium, disorientation, delusions, and euphoria. Attention is called to the need of distinguishing the euphoric state due to the drug and the elation resulting from the patient's emergence from a state of depression.

The management of barbiturate poisoning depends on the dose and the severity of the symptoms. Most of the minor grades of poisoning that result from therapeutic overdosage give rise to confusional states and coma from which patients recover satisfactorily without treatment. The more severe cases of suicidal poisoning which are brought into the general hospital show a mortality of approximately 25 per cent. Outstanding symptoms are deep coma, cyanosis, shallow respiration, rapid pulse, constricted pupils, and fever. As the poisoning progresses, the pupils dilate, circulatory failure ensues, and the symptomatology is complicated by bronchopneumonia.

The measures employed in treatment involve the removal of obstruction to the free passage of air (tongue or mucus), the application of warmth to the skin, and oxygen inhalation. In the presence of signs of circulatory failure, infusions of glucose and saline are useful. Drug antidotes have a limited place in the treatment of barbiturate poisoning. The most popular analeptic for this purpose is picrotoxin. It is wise to apply it only in the more severe cases, since it is a convulsant, and there is danger in its use. The objective is to maintain a state of mild hyperexcitability until the patient eliminates enough of the barbiturate to insure survival. It is not possible to reverse the depressant action so as to restore consciousness by a direct action of the picrotoxin, even with doses which cause convulsions. The usual plan of dosage is to give 10 mg. intravenously at intervals of about twenty minutes until some signs of hyperexcitability appear, after which the doses are reduced and the intervals lengthened so as to maintain this state. The delay in the appearance of the effect of such doses of picrotoxin, even by intravenous injection, is stressed as a source of danger.

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Cases of delirium due to acute intoxication with barbiturates have been reported. They may resemble delirium tremens due to alcohol. The prominent emotion is fear. The patient is disoriented and experiences hallucinations in the visual field, which are usually very vivid. Such a reaction may result from a more or less regular use of barbiturates over a period of time to ease emotional stresses in the types of personality maladjustments that have been mentioned. In such cases one sees difficulty in thought concentration, unsteadiness of gait, and occasional disorientation with euphoria. Some years ago it was reported that such chronic use of the drug occurred chiefly in psychopathic personalities.

I think the significance of euphoria should be kept in mind in the continued use of barbiturates, bromides, or other sedative medications. Since euphoria is an early indication, from the psychiatric standpoint, of drug intoxication, care should be taken not to confuse it with elation. If a barbiturate is being given to a depressed person for a long time to alleviate tension or insomnia and the patient begins to appear elated, one must be sure that the patient is really emerging from a depression rather than showing euphoria as an early manifestation of drug intoxication. The euphoric state can be described by noting its similarity to the picture of early alcoholic intoxication. Here there is a sense of well-being, with maudlin speech and behavior, as distinguished from elation.

STUDENT: In one of the recent lectures given by Dr. Hansson in the Department of Physical Therapy, he made the statement that barbiturate poisoning can frequently be aided by the application of fever therapy. I am wondering whether anyone has any further information on that possibility. He quoted one instance of a patient who was brought in in coma and was almost immediately revived when placed in a fever cabinet.

DR. CATTELL: Who will comment on that?

DR. GOLD: I have never heard of it before.

DR. WHEELER: Could it conceivably be that by increasing the body temperature to a marked degree one speeds up the metabolism, and that increases the rate of destruction of the drug?

DR. GOLD: It seems to me unlikely.

DR. WHEELER: Dr. Gold, I should like to ask you this: Most of the patients we see with barbituric acid poisoning are brought into the accident room in a stuporous condition. It is not possible to find out how much of the drug they have taken. Therefore we do not know whether they have taken an amount that justifies leaving them alone or whether they have taken an amount that requires immediate treatment. Would you say something about what should be done under those circumstances? Should the doctor start using picrotoxin? Or what criteria are used to decide whether the patient should be treated vigorously?

DR. GOLD: What to do depends on the depth of the narcosis.

If the general condition is good, if there is no cyanosis, if the blood pressure level is satisfactory, and if respiration is adequate, I should withhold all treatment. If there is a question of cyanosis, use oxygen by inhalation. Keep the patient under continuous observation, with special attention to the warmth of the skin and to the blood pressure. The presence of some reflex, like holding the breath when pinched or some response to a painful stimulus, is an indication of relatively light narcosis from which the patient will recover without treatment. In such a case let the matter stand without picrotoxin treatment. However, if the patient shows signs of deterioration, shallow, feeble respiration, disappearance of all reflexes, cyanosis, cooling off of the skin, or falling blood pressure, active therapy should be applied—namely, oxygen inhalation, intravenous infusions, and picrotoxin.

DR. CATTELL: Is that chart something for us?

DR. GOLD: Yes. This is a case of a child who had eaten 1.17 Gm. of phenobarbital. He was 3 years old and weighed 30 pounds. This makes about 90 mg. of phenobarbital per Kg. It is in the range of dosage which is fatal for man. He became deeply narcotized, and, among other measures, he was treated with picrotoxin. He received a total of about 28 mg. of picrotoxin in thirty hours, or about 2 mg. per Kg. This is more than a fatal dose of picrotoxin to a non-barbitalized person. He recovered.

There are some noteworthy facts about the experience with this patient. The first dose was 6 mg. given intravenously over a period of twenty-five minutes (about 0.4 mg. per kg.). It caused brief clonic convulsive movements. One-fourth as much as this has been known to cause convulsion in human beings. The dose of 6 mg. for this child would be equivalent to 30 mg. for a 150-pound man. That is too much for a starting dose. If the narcosis is not very deep and susceptibility is high, such a dose can cause, as it did in this case, a convulsion. Repeated doses were given throughout the first thirty hours, after

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DR. GOLD: I may now briefly summarize some of the outstanding points in the conference this morning. The indiscriminate prescribing of barbiturates in chronic alcoholism or nervous disorders makes large quantities of these drugs available to such patients. Fatal poisonings in New York City have nearly doubled in the past ten years, and most of the deaths are suicidal. While in the majority of cases death is delayed, there are some in which the course of fatal poisoning is extremely rapid—a matter of hours—so rapid that some other poisoning is suspected. The barbiturates have a strong alkaline reaction and occasionally produce intense gastric irritation with marked hyperemia of the mucosa. Postmortem findings are not characteristic. They include visceral congestion and hypostatic bronchopneumonia, although in rare cases softening of the globus pallidus, simulating carbon monoxide poisoning, has been reported. Chemical examination of the urine, the gastric contents, the brain, and the liver helps to establish the diagnosis. Fairly large amounts, of the order of 20 to 40 mg. of the barbiturate per Kg. of the tissue, have been found in fatal cases. For medicolegal purposes, the mere finding of barbiturate is often insufficient to establish the cause of death. Attending circumstances and the exclusion of other common causes of death help to decide the issue. In fact, in some cases very little barbiturate may be found, the largest part of the dose being excreted or destroyed during the long interval before death takes place from secondary factors, such as exhaustion and bronchopneumonia.

The barbiturates are responsible for about one-third of the cases of drug psychosis admitted to this hospital. Chronic barbiturate poisoning is frequently associated with chronic alcoholism and personality disorders. In the absence of coma, these cases present a variety of symptoms such as delirium, disorientation, delusions, and euphoria. Attention is called to the need of distinguishing the euphoric state due to the drug and the elation resulting from the patient's emergence from a state of depression.

The management of barbiturate poisoning depends on the dose and the severity of the symptoms. Most of the minor grades of poisoning that result from therapeutic overdosage give rise to confusional states and coma from which patients recover satisfactorily without treatment. The more severe cases of suicidal poisoning which are brought into the general hospital show a mortality of approximately 25 per cent. Outstanding symptoms are deep coma, cyanosis, shallow respiration, rapid pulse, constricted pupils, and fever. As the poisoning progresses, the pupils dilate, circulatory failure ensues, and the symptomatology is complicated by bronchopneumonia.

The measures employed in treatment involve the removal of obstruction to the free passage of air (tongue or mucus), the application of warmth to the skin, and oxygen inhalation. In the presence of signs of circulatory failure, infusions of glucose and saline are useful. Drug antidotes have a limited place in the treatment of barbiturate poisoning. The most popular analeptic for this purpose is picrotoxin. It is wise to apply it only in the more severe cases, since it is a convulsant, and there is danger in its use. The objective is to maintain a state of mild hyperexcitability until the patient eliminates enough of the barbiturate to insure survival. It is not possible to reverse the depressant action so as to restore consciousness by a direct action of the picrotoxin, even with doses which cause convulsions. The usual plan of dosage is to give 10 mg. intravenously at intervals of about twenty minutes until some signs of hyperexcitability appear, after which the doses are reduced and the intervals lengthened so as to maintain this state. The delay in the appearance of the effect of such doses of picrotoxin, even by intravenous injection, is stressed as a source of danger.

A case of poisoning by barbiturate and its treatment have been discussed in order to illustrate some of these points.

Case Report

SENSITIVITY TO SULFONAMIDE COMPOUNDS PROBABLY AVOIDED BY COMBINED USE WITH ASCORBIC ACID

Preliminary Report

LOUIS PELNER, M.D., Brooklyn

TOXIC reactions to the sulfonamide drugs have been described as caused by sensitivity to the drug and also as a result of overdosage. Undoubtedly both types of reaction exist. Sensitivity to one drug usually implies sensitivity to the others of the series so that substitution of one for the other is ineffective when sensitivity is present.[1] The actual mechanism of reactions to the sulfonamide drugs is unknown. The following case report is given because nearly every physician is faced with the necessity of using a sulfa compound even though reactions have been obtained previously with one of them.

Case Report

J. C., a 65-year-old man, developed chills, cough, expectoration, and high fever (104 F.). Diminished breath sounds were heard at the left base, and a diagnosis of pneumonia was made. The patient had been a known hypertensive for several years, and his urine constantly showed a faint trace of albumin, but there were no other abnormal findings. Sulfathiazole, 1 Gm., was ordered to be given every four hours, and fluids were forced. After taking three doses (3 Gm.) the patient became stuporous, anuric, and began to vomit. Later the vomitus became bloody, and he was hospitalized.

At the hospital the obvious symptoms were disregarded and were thought to be due to the severity of the pneumonic process, so another dose of sulfathiazole was given. The urea nitrogen was 110 mg. per 100 cc., white blood cells count was 15,500, with 90 per cent polymorphonuclear cells. No sulfathiazole crystals were found in the urine. Soon it was recognized that this might be a reaction to the sulfathiazole, which was immediately discontinued, and an infusion of glucose and saline was given.

About one and a half hours later the patient could be roused and started voiding. Following this, the urea nitrogen in the blood steadily dropped over a period of several days. On the seventh hospital day the recovery was interrupted by a bout of jaundice which cleared rapidly. This was taken to be a hepatitis due to liver damage by sulfathiazole. Further recovery was without incident.

The patient remained comparatively well for two years. Recently, however, he again developed a chill, pain in the upper left side of the chest and the left shoulder, a cough, and a temperature of 105 F. A diagnosis of pneumonia of the left upper lobe was made on the history and physical findings. Hospitalization was advised but firmly refused. Sulfadiazine, 1 Gm. every four hours, was prescribed.

Previous work by the author,[2] in the detoxification of salicylates by ascorbic acid in a patient with rheumatic fever with sensitivity to salicylates, suggested that the vitamin be given to this patient. The patient's diet was apparently deficient in vitamin C content. One hundred mg. of ascorbic acid was therefore given with each dose of sulfadiazine. The possibility of precipitating sulfadiazine crystals in the urine by giving an acid was not realized. The patient made a remarkable recovery. The blood concentration of sulfadiazine was 8 mg. per 100 cc. after twenty-eight hours of therapy. The patient also appeared to be free from the mental depression that often accompanies sulfa-drug therapy. He did not become intolerant to sulfadiazine at any time during this treatment.

Since this case was treated, 50 additional patients have been given full doses of sulfadiazine (1 Gm. every four hours) with the addition of 100 mg. of ascorbic acid at the same interval. In none of these patients was it necessary to discontinue the medication because of reaction, and none of them exhibited the depression often seen after sulfa therapy.

A search of the medical literature revealed several previous references to this combined form of treatment.[3-9] One group of authors found no difference in the survival time between rats treated with vitamin C-sulfanilamide and those treated with sulfanilamide alone.[4] We are among those who do not believe that vitamin C increases the effect of sulfanilamide, but rather we believe that it minimizes the reactions to this drug.[6] Other groups, however, point to an increase in the sulfanilamide effect.[7]

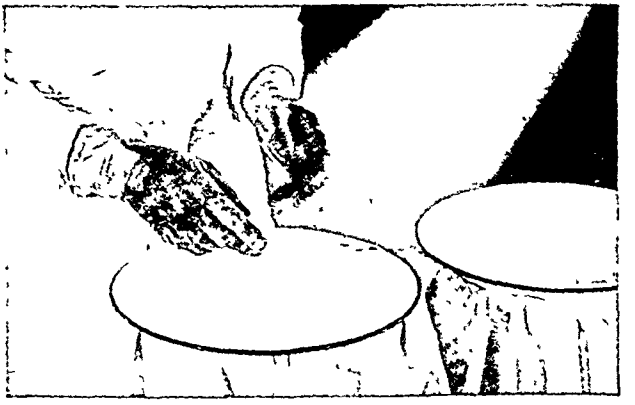
Dainow and Zimmet[8] were the first to show that ingestion of sulfanilamide caused a diminution of vitamin C content of the testicles, liver, and brain of the animals tested. Dainow[9] also pointed out that sulfanilamide reactions such as purpuras, hemorrhage, gastrointestinal disturbances, skin eruptions, epistaxis, and anemia are characteristic signs of scurvy and that concomitant administration of vitamin C may prevent these reactions.

No case history was found in the literature in which a patient who had previously had a severe reaction was given the combined sulfonamide-vitamin C therapy at a subsequent date without reaction. This combined treatment remains to be further tried and carefully evaluated statistically.

177 Kingston Avenue
Brooklyn

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Postgraduate Medical Education

Programs arranged by the Council Committee on Public Health and Education of the Medical Society of the State of New York are published in this section of the JOURNAL. *The members of the committee are Oliver W. H. Mitchell, M.D., Chairman (428 Greenwood Place, Syracuse); George Baehr, M.D.; and Charles D. Post, M.D.*

Obstetrics and Gynecology

THE second in a series of two lectures on obstetrics and gynecology, presented before the Cortland County Medical Society, will be given on Friday, October 15 at 8:30 P.M. in the Cortland County Hospital in Cortland. The speaker will be Nathan P. Sears, M.D., professor of gynecology, Syracuse University College of Medicine, who will discuss "Gynecology in General Practice."

The first lecture, "Delivery Room Problems—Analgesia, Anesthesia, etc.," was given on September 17 by Donald C. McGill, M.D., instructor in obstetrics and gynecology, University of Rochester School of Medicine and Dentistry.

The lecture on obstetrics was provided by the Medical Society of the State of New York in cooperation with the State Department of Health.

"Prenatal and Postpartum Care"

A SINGLE lecture on "Prenatal and Postpartum Care" was arranged for the Greene County Medical Society on September 30 at the Memorial Hospital of Greene County in Catskill. The speaker was Merton C. Hatch, M.D., associate professor of clinical obstetrics, Syracuse University College of Medicine.

The instruction was provided by the Medical Society of the State of New York in cooperation with the New York State Department of Health.

HEALTH OF YOUNG WORKERS MUST BE CONSERVED

Pointing out that the trend for boys and girls of 14 to 17 years of age to enter industry is likely to increase at an ever growing rate as the war continues, the *Journal of the American Medical Association* says that the health of these young workers should be conserved:

"Many boys and girls of 16 and 17 years and even younger now take full- or part-time jobs or work during summer vacation periods. In a survey of mortality of young people of 15 to 19 years the death rate from all causes combined (except enemy action) was 35 per cent lower among white boys and 47 per cent lower among white girls in 1942 than the average rates for the preceding three-year period. There are, however, some unfavorable spots in the record. The death rate for tuberculosis increased among white males from 15 to 24 years of age and more particularly from 15 to 19, while it decreased for all other ages up to 75. Among adolescent girls aged 15 to 19 the tuberculosis death rate in 1942 continued to decline. The death rate from accidents among white boys from 15 to 19 was 17 per cent higher than in the preceding years.

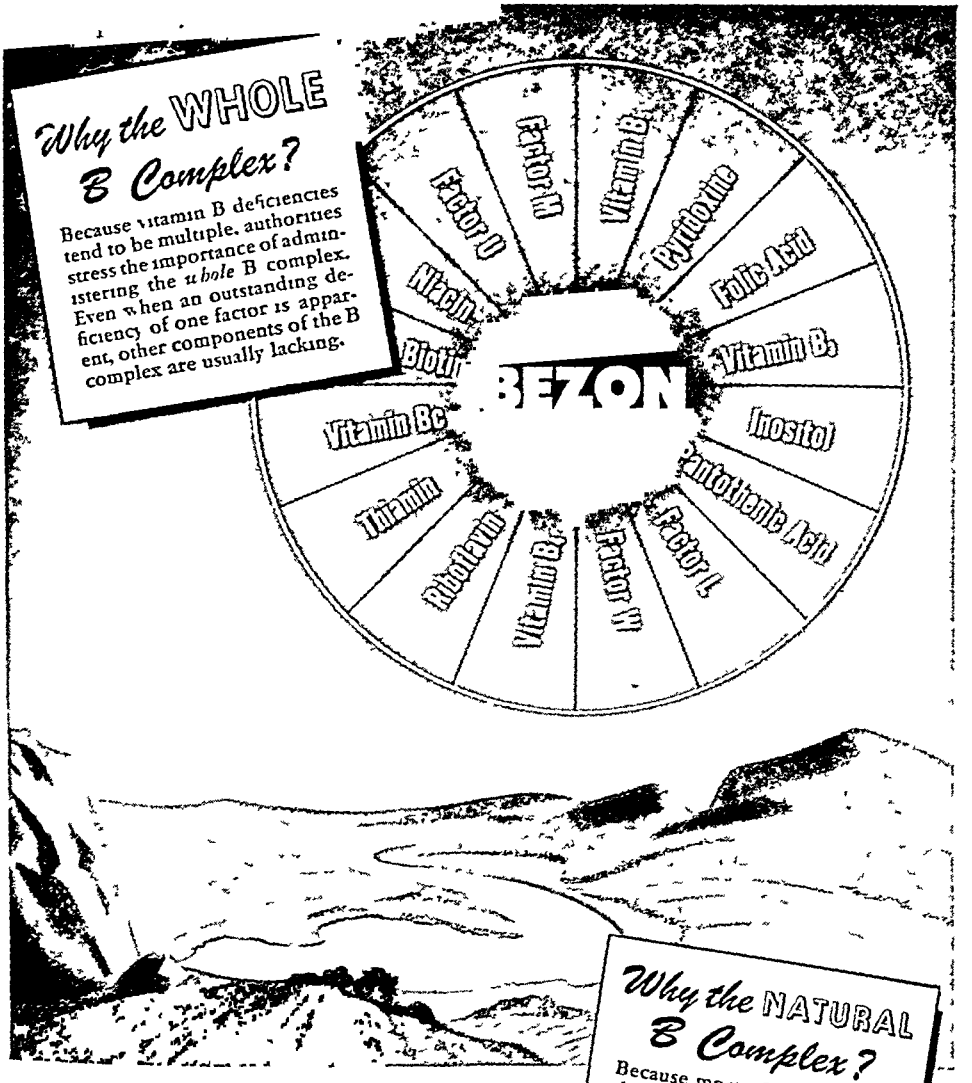
"Protective laws are the primary safeguards Boys and girls should not be allowed to work in atmospheres which contain harmful dusts, fumes, and gases. Young boys may be crippled by heavy manual labor or by work for long periods in cramped positions. Furthermore, information should be spread that boys of 14 to 17 usually do not possess the required skill or stability to permit them to operate dangerous machines It must also be realized that farming is a hazardous occupation and that many accidents result from attempting to handle animals or farm machinery without adequate strength or training. Every effort should be made to strengthen the bodies of these young workers."

PRIZE FOR PAPER ON NONCONGESTIVE GLAUCOMA

The National Society for the Prevention of Blindness announces that a prize of $250 will be awarded for the most original paper adding to the present knowledge about medical treatment of noncongestive glaucoma. Papers should be in the office of the Society, 1790 Broadway, New York City, by September, 1944. (This prize is being offered in addition to one that was previously announced for the most valuable original paper concerning the diagnosis of early glaucoma.)

Papers may be presented by any practicing ophthalmologist of the Western Hemisphere and may be written in English, French, German, Italian, Spanish, or Portuguese, but those written in any of the last four languages should be accompanied by a translation in English.

The award will be made by the Society with the guidance of an ophthalmologic committee composed of Drs. Evans, Keil, Kirby, McLean, Reese, Samuels, Schlivek, Schoenberg, and Webster.



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Medical News

Military Surgeons to Meet

ONE of the most important medical meetings ever held in this nation in time of war will convene in Philadelphia on October 21, when the Association of Military Surgeons of the United States begins its three-day sessions in the Bellevue-Stratford Hotel to mark the fifty-first meeting of the organization.

The symposium on war medicine will be of vital and direct interest to the health and welfare of the men in the armed forces, to physicians, research specialists, and scientists everywhere, as well as to the general public. It is expected that the meeting will attract 2,000 doctors, many of whom have been in active combat with the servicemen in every camp and base throughout the country and on all the fighting fronts.

The announcement of the plans for the convention of military surgeons was made by Rear Admiral William L. Mann, M.C., of Seattle, Washington, president of the Association of Military Surgeons.

The meeting will be of a magnitude and scope never before known in the history of the organization, according to Rear Admiral Mann. Medical officers of the armed forces who have seen actual duties in the various combat zones will report first hand on the United States medical services under combat in climatic conditions new to American arms.

Medicine's methods of meeting the new and complicating factors brought on by mechanized modern warfare will also highlight the sessions. There will be reports and discussions on such new matters as air evacuation, parachute injuries, the physiologic aspects of high altitude flying and dive bombing, tropical medicine, blast injuries, amphibious operations, submarine warfare, immersion and temperature extremes, neurosurgical problems, and the whole field of rehabilitation.

The meeting will be opened with addresses of welcome by Governor Edward Martin, of Pennsylvania, and Mayor Bernard Samuel, of Philadelphia. At the initial evening session, to be known as "Army Night," the President will deliver his greetings to the convention via radio. There will be addresses by the Chinese Ambassador, Wei Tao-Ming, and by Surgeon General Norman T. Kirk, of the United States Navy.

At the following night's session, which will be known as "Navy Night," the principal speaker will be the Hon. Frank Knox, Secretary of the Navy. The presiding officer will be Rear Admiral Ross T. McIntire, surgeon general of the United States Navy and personal physician to the President.

Nationwide hook-ups will carry reports of the meeting to the public at large and by short-wave broadcast to the people in Allied countries, who will be apprised of the progress of the convention and its meaning to the men in arms and national health in general.

Telephone Orders for Narcotic Medication

IT HAS come to the attention of the New York State Health Department's Bureau of Narcotic Control that many pharmacists operating in New York State have notes in their narcotic prescription files to remind them that physicians owe them prescriptions calling for a large aggregate amount of narcotic drugs which have been supplied to patients but for which no valid order has been received.

This situation is the result of telephone calls from physicians who request the pharmacist to supply narcotic medication to patients with the understanding that a prescription will be sent in later. These promises are easily forgotten and many physicians have gone into the armed services without fulfilling them.

Under the provisions of the New York State Narcotic Drug Law, Article XXII, Section 426, pertaining to sales by apothecaries, and Article 172 of the Federal Narcotic Regulations No. 5, concerning telephone orders, the furnishing of any narcotic drug pursuant to a telephone request by a physician *is prohibited with just one exception.* During the present war emergency, physicians are under great pressure to make more calls per day and to cover a wider territory. Wherever immediate delivery of narcotics to a patient is required, a pharmacist may send such drugs, personally or through an employee, based on a physician's telephone order, *only* if a properly prepared prescription is available at the time and place of delivery. Both parties may be held responsible for failure to comply with these emergency conditions. The pharmacist is not protected by the physician's statement that he will later supply a prescription or prescriptions to cover such orders. A violation exists even when prescriptions are received subsequently by the pharmacist.—*Health News*

Bullis Fever

A NEW disease entity, hitherto undescribed, apparently transmitted by a tick, is reported in a recent issue of the *Journal* of the American Medical Association by Col. John C. Woodland, Maj. Mordecai M. McDowell, and Capt. John T. Richards, of the Army Medical Corps. The new disease, which they name "Bullis fever," was first noticed in a group of soldiers who had been on maneuvers at Camp Bullis, a military reservation about 20 miles west of Fort Sam Houston, Texas. All of the patients had been bitten by a species of tick, commonly called the Lone Star tick because of the star-shaped marking on its back. While the Army physicians do not hazard a guess as to the cause of the new disease, they believe that further investigation will show that it is transmitted to man through tick bites. In many ways Bullis fever resembles other acute feverish illnesses. Outstanding clinical features include severe headache, inflammation of the lymph glands, unusually low white blood cell count, and high fever.

[Continued on page 1880]

"BILLIONS FOR DEFENSE"

against the Common Cold



Each Oravax tablet contains 50 billion killed organisms of a wide range of bacterial species, providing broad protection against the secondary invaders.

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J. M. A. Georgia *28:* 332-334 (1939)

Number of severe colds and total days' illness from severe colds in Oravax group only one-fifth that in control subjects.

Journal-Lancet *60:* 319-324 (1940)

70.2% decrease in number of colds in group receiving Oravax; 7.2% decrease in group given placebos.

Indust. Med. *9:* 530-533 (1940)

Oravax is inexpensive, painless, free from severe reactions. Suggested dosage is one tablet daily for 7 days; then one tablet twice weekly throughout season when colds are most prevalent. Oravax is available in bottles of 20, 50 and 100 tablets.

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[Continued from page 1878]

Medical Training Is Opened to Wacs

NEW opportunities have been opened to members of the Women's Army Corps for training and service in the Army Medical Department.

Beginning September 10, the first of more than 1,000 members of the Wac were enrolled in the Army-Navy Hospital School at Hot Springs, Arkansas, in military hospital training courses.

Graduates will be assigned to duty at general and station hospitals.

Each Wac selected to attend the school will receive training in one of five courses. New classes will be started on the tenth of each month.

Three of the courses, those for training x-ray technicians, are of three months' duration. For each of these 45 women will be selected initially.

Courses for training medical and surgical technicians are of two months' duration, for each of which 100 Wacs will be selected.

The new field of training has heretofore been restricted to male military personnel.

County News

Albany County

Dr. Edward F. Urba, of Kinderhaak, received the August award as the Albany *Times-Union's* "hero of the month."

Despite the lack of proper surgical equipment, Dr. Urba amputated the leg of an engineer trapped in a swaying locomotive during a derailment at Chatham on August 2.

Dr. Urba was one of seven candidates for the award, the Albany newspaper's method of honoring unsung heroes on the home front, and he will be presented with a $25 War Bond on behalf of the *Times-Union* editors.*

Bronx County

"Obedience should be the natural result of the child's trust in his parents and should not be the result of fear. Show your child that he can trust you and he will obey, but remember, more important than that, teach him such standards of behavior that he will know what to do when you are not there to correct him."

Dr. Michael Pulver made the above statement to his radio audience on August 23 over Station WBNX, in a talk, "Habit Training of the Preschool Child," given under the auspices of the Bronx County Medical Society and the Bronx Tuberculosis and Health Committee.*

Broome County

After serving in the Army Medical Corps overseas since February, 1942, Capt. Nicholas I. Klimow, of Johnson City, has returned to his home on sick leave.

Captain Klimow has observed the action of the American and Japanese soldiers and reports that while the Japanese are brave, they nevertheless lack the ingenuity with which the American troops fight.

Before joining the armed forces, Captain Klimow was head of orthopaedic surgery at Wilson Memorial Hospital in Johnson City.

Columbia County

Dr. Robert H. Little, formerly of New York City, has assumed the practice and former offices of the late Dr. Henry C. Galster, of Hudson.

Dr. Little was graduated from the University of Manitoba, in Canada. He later gave up a general practice at Estevan, in the Province of Manitoba, to travel. While abroad, he did postgraduate work at several hospitals in London, including the Central London Hospital. Upon his return to this country, Dr. Little studied at the Presbyterian Medical Center, New York City, for six months. For two years he was on the staff at the Manhattan Eye, Ear, Nose, and Throat Hospital.*

Erie County

The Buffalo campaign to collect drugs and surgical supplies for Soviet Russia, sponsored jointly by the Medical Society, the Buffalo Hospital Council, and the Western New York Retail Druggists Association, has been reported a success by Mrs. Lawrence D. Bell, chairman of the Russian War Relief Headquarters.

Druggists, doctors, and hospitals cooperated in the collection and donation of the supplies. The Medical Advisory committee for the drive was headed by Dr. Herbert H. Bauckus, president-elect of the Medical Society of the State of New York.

• • •

The Emergency Medical Service of the Buffalo Office of Civilian Protection has appealed for nine used cars on which to mount a corresponding number of four-stretcher ambulance bodies which have been allotted to the City of Buffalo by the United States Office of Civilian Defense.

Designed after extensive study, the USOCD ambulance body is made of wood and noncritical materials. It must be mounted on the rear portion of the chassis of a Ford, Chevrolet or Plymouth four-door sedan, models 1939–1941, after the part of the body behind the front seat has been removed.

Only used cars of those makes and years are suitable and acceptable, according to instructions received from the USOCD.

Dr. Harold F. R. Brown, president of the Erie County Medical Society and chief of the Emergency Medical Service, pointed out that existing conditions in the local automobile market have made procurement of the desired type of cars extremely difficult.

At present the Buffalo Emergency Medical Service has at its command 17 hospital ambulances, as well as approximately one hundred auxiliary ambulances consisting of morticians' service cars and other types of automotive equipment.*

• • •

Dr. Lois Plummer has opened an office in Buffalo.

Greater New York

In conformity with a recent amendment to the premarital examination law, the premarital statement formerly in use has been modified. The reverse side of the new statement now carries information and instructions both for the physician and the applicant.

The changes in procedure, as outlined by the Bureau of Social Hygiene of the New York City Department of Health, are as follows:

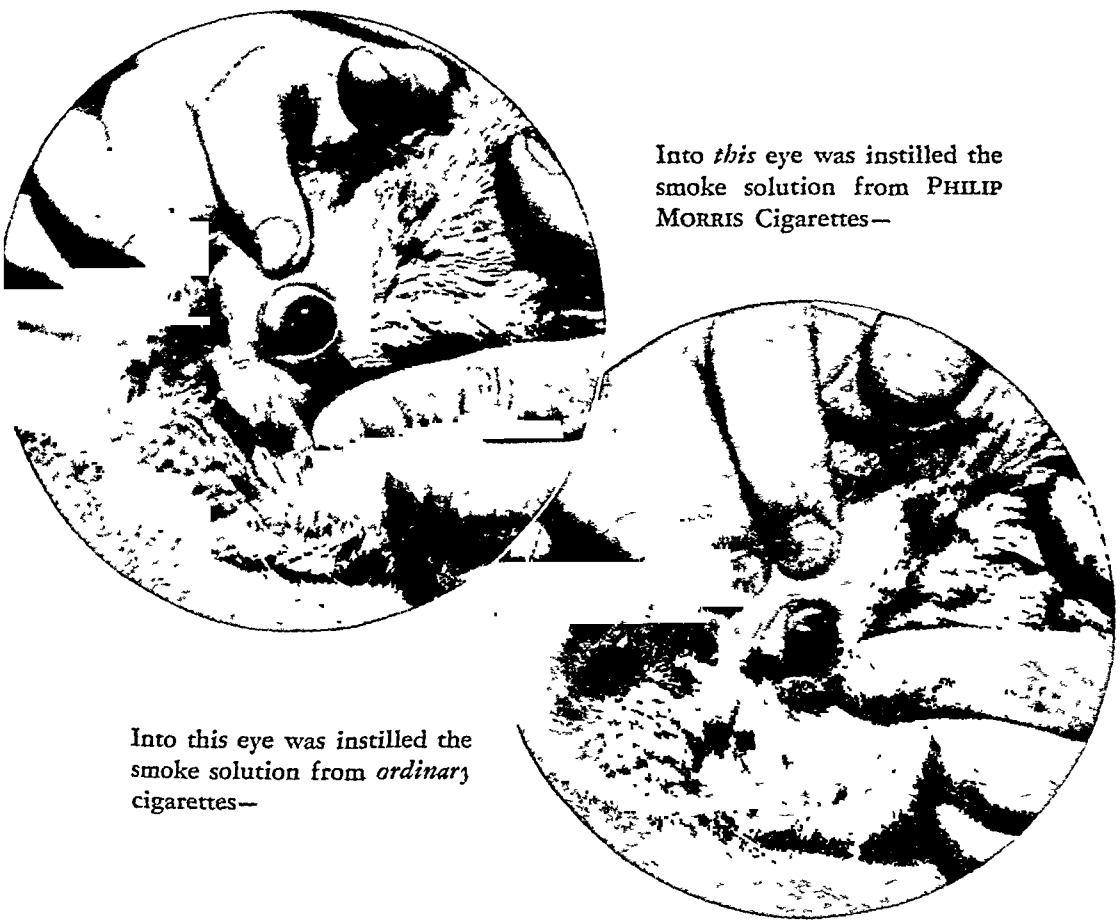
1. The Health Department Laboratory and private clinical laboratories will continue to perform the required premarital serologic test. *No special*

[Continued on page 1882]

* Asterisk indicates that item is from local newspaper

CIGARETTE DIFFERENCES

as shown by the rabbit-eye test



Into *this* eye was instilled the smoke solution from PHILIP MORRIS Cigarettes—

Into this eye was instilled the smoke solution from *ordinary* cigarettes—

NOTE THE DIFFERENCE in Edema. Average produced by *ordinary* cigarettes: 2.7. Average produced by PHILIP MORRIS: 0.8. CLINICAL TESTS showed that when *smokers* with irritation of the nose and throat due to smoking changed to PHILIP MORRIS, every case of irritation cleared completely or definitely improved.

From tests published in Proc. Soc. Exp. Bio. and Med., 1934, 32, 241-245
Laryngoscope, 1935, XLV, No. 2, 149-154

[Continued from page 1880]

forms or blanks are required by the physician. As heretofore, blood specimens for such cases should be plainly marked "premarital." The laboratory, after completing the serologic examination, will forward the necessary form to the physician. Only standard Wassermann and Kahn tests are acceptable for premarital purposes in New York City.

2. Application for a marriage license may now be made anywhere in New York State, irrespective of bride's residence. Heretofore, application could be made only in the county where the prospective bride lived.

3. The City of New York has discontinued the $1.00 fee for premarital reports issued by the Health Department Laboratory.

4. If the result of the serologic test for premarital purposes is negative, a report need no longer be filed with the Health Department. Only positive reports are to be filed hereafter.

5. It is now permissible to use, for premarital purposes, a routine report of a serologic test for syphilis, providing the test is not more than thirty days old. In such infrequent cases, the physician may obtain a premarital blank from the Health Department and fill in the necessary information regarding the blood test and physical examination.

• • •

Dr. J. Stanley Kenney has accepted appointment as chairman of the physicians' group of the New York Committee of the National War Fund.

This announcement was made yesterday by James A. Farley, chairman of the Commerce and Industry Division which will be responsible for raising upwards of 50 per cent of the five-borough goal of $17,000,000 in this Fall's campaign for support of the USO, the United Seamen's Service, and 15 other major war-related organizations, serving our own armed forces and the civilian relief needs of the United Nations.

In announcing the appointment, Mr. Farley urged business men to cooperate in the forthcoming campaign, calling it "one of the greatest humanitarian efforts in the history of New York." He stressed the fact that under the War Fund plan of solicitation for gifts covering the financial needs of all the member agencies through October 1, 1944, contributors will be given a year's "immunity" from multiple appeals. Through a "once-for-all once-a-year" gift payment plan, contributors will receive a receipt for their pledges for the year, and a record of the same will be kept at headquarters, Mr. Farley explained.

Thus, he said, the National War Fund will eliminate confusion in the minds of donors who in former years have been confronted with multiple demands upon their generosity.

The National War Fund, Mr. Farley said, will be a boon to the business man as well as the public in general by eliminating the problem of endless appeals. At the same time, however, because of the many agencies whose financial needs are being met by the single War Fund appeal, we must strive for higher gifts than would ordinarily be the case were each agency making its own separate appeal. To enable donors to make their contributions as substantial as possible, the War Fund has instituted a deferred payment plan whereby pledges may be paid in installments over a period of a year.

In addition to the USO and United Seamen's Service, member agencies of the National War Fund, which has a nation-wide goal of $125,000,000, include: War Prisoners Aid, U.S. Committee for Care of European Children, Refugee Relief Trustees, Belgian, British, French, Greek, Luxembourg, Norwegian, Polish, Russian, Holland, China, Czechoslovak, and Yugoslav Relief.

The New York quota includes the budget of the New York City Defense Recreation Committee, now serving upwards of 1,000,000 service men a month.

The campaign will start about October 1 and continue until December 7, second anniversary of Pearl Harbor.

Kings County

Members of the county society have contributed a total of $11,739 to the society's deficit fund in honor of members who are serving in the armed forces. Lists of members who have made voluntary contributions of $20 each are published from time to time in the county *Bulletins*.

Company commanders, platoon and squad leaders have been selected from the student trainee body of the Long Island College of Medicine as the officer and noncommissioned officer personnel for two companies comprising the 3211th Service Command Unit, Army Specialized Training Program, Capt. Robert J. Geis, commanding officer of the unit, has announced.

According to Captain Geis, setting up companies with student officers is part of the training of the college unit to give experience in leadership to the medical men who on their graduation upon application will be appointed first lieutenants in the army.

Officer and noncommissioned officer personnel will be rotated to give an equal opportunity to all army student-trainees at the Long Island College of Medicine. Captain Geis, who was transferred to the Long Island College of Medicine from Clarkson College of Technology in Potsdam, New York, where he was assistant professor of military science and tactics, succeeds Maj. Robert B. Johnson, who has been transferred to the headquarters of ASF, R.O.T.C. branch, Second Service Command at 50 Broadway, Manhattan. Major Johnson installed the army unit at the college early in July.

In World War I, Captain Geis, who joined the 71st Regiment, New York National Guard, in 1909, served overseas as a lieutenant in the 27th Division.

In 1919 he re-entered the 71st Regiment, from which he resigned as a captain in 1926. In September, 1940, he was commissioned a captain in the 17th Regiment, from which he resigned in December, 1942 as a major to enter the regular army as a captain.*

Monroe County

Unusual cooperation has been given by both management and labor to the tuberculosis case-finding program sponsored by the Tuberculosis and Health Association of Rochester and Monroe County it was reported at a recent meeting of the board of directors of that association.

Dr. Paul Beaven, chairman of the Association Tuberculosis Prevention Service Committee, who presented the report, said that over 4,000 persons have been given the tuberculin skin test in this case-finding program in both city and county since April 1. Dr. Rose Pucci is the medical consultant in this program and Mrs. Rosalia Loritz, field secretary of the association, organizes the work.

Dr. G. Kirby Collier, president of the Monroe County Medical Society, praised this industrial program and expressed the great interest of the phy-

[Continued on page 1884]



the EXTRA FACTOR
in mucous membrane antisepsis

Should an antiseptic be antiseptic only? Or should mucous membrane medication be only contra-congestive? Can any one preparation have BOTH these properties, yet combined with them the more important characteristic of stimulation of tissue defense mechanism?

The single purpose of most antiseptics is germ destruction. But toxicity to germs of most antiseptics is coupled in much too great a degree with toxicity to membranes—and such toxicity in an antiseptic is especially undesirable when treating infections of the mucous membrane.

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[Continued from page 1882]

sicians in the work. The county society cooperates with this work through its special tuberculosis committee.*

• • •

Rochester Hospital Service has paid $4,226,699 for hospital care since it was established in June, 1935, and has grown to 214,000 members.*

Montgomery County

Dr. F. Popper, of New York City, opened an office for the general practice of medicine in Fultonville on September 1.

Dr. Popper has been affiliated with various hospitals and institutions in this country and abroad. He is licensed to practice medicine in England, Italy, Germany, and the United States. He served one year's internship with the Mercer Hospital in Trenton, New Jersey, and was later the resident physician at the Littauer Hospital in Gloversville. Dr. Popper went to Fultonville from the West Side Hospital and Dispensary in New York City.*

New York County

Gov. Thomas E. Dewey has announced the appointment of Dr. C. B. Powell, a New York City physician, as the first Negro member of the New York State Athletic Commission.

Powell will serve a three-year term as successor to William J. Brown, of Garrison, resigned, and will receive $25 a day for attendance at meetings.

A graduate of Howard University Medical School, Dr. Powell was born in Newport News, Virginia, in 1894. He interned at Bellevue Hospital and in 1921 began practice in New York City as the first Negro doctor to specialize in x-ray.

He is president and editor of the *New York Amsterdam News*, president of the Community Personal Finance Corp., and president of the Victory Mutual Life Insurance Co., of Illinois.

• • •

A disease causing blindness, relatively new to this hemisphere and brought to the southern part of Mexico by mosquitoes from Africa, has spread to such proportions as to hold up completion of the Pan-American Highway, it was disclosed recently by Dr. Merle E. Frampton, Professor of Education at Teachers College, Columbia University and principal of the New York Institute for the Education of the Blind.

Dr. Frampton returned by plane from Mexico City, where he and three other American sociologists attended, as advisers, the first Mexican Government Congress of Public Health.

The new disease, which the Mexican government is making strenuous efforts to combat, is called onchocerciasis, Dr. Frampton said. The infection centers in the back of the head, affects the optic region, and quickly causes blindness.

While the disease has not reached epidemic proportions, Dr. Frampton said it was spreading rapidly in the southern part of Mexico.*

• • •

Skin banks to facilitate skin grafting of service men wounded or burned in action were proposed today by Dr. D. Olan Meeker, New York physician and biochemist, as a practical parallel to the Red Cross blood banks.

Skin, removed from donors in a "relatively simple" operation, could be frozen at temperatures of 30 to 50 degrees below zero, he told the fourth annual research conference of the Institutum Divi Thomae. An ice bag anesthetic would be sufficient for the removal of layers one-thirty-second to one-sixty-fourth inch thick, he said.

He pointed out that the skin bank would eliminate the need of stripping skin from other parts of the victim at the time of the injury.*

• • •

According to the Navy doctors who are stationed at the new United States Naval Hospital at St. Albans, L. I., sailors at sea are so healthy that a ship's doctor has little to do unless an accident occurs.

Dr. Sheldon A. Jacobson, of New York, who is now on land duty after fourteen months on an oil tanker, said that many of his patients were from other ships. Captains frequently spelled out the symptoms with lights and flags, and Dr. Jacobson diagnosed the case from his ship, often making his call in a whaleboat.

After the humdrum monotony of looking after healthy sailors at sea, most Navy doctors welcome the activity of hospital duty, Dr. Jacobson said.

• • •

Dr. Oswald T. Avery, a member of the staff of the Rockefeller Institute since 1913, has been made member emeritus of the Institute.

• • •

The following New York physicians will take part in the Sixteenth Graduate Fortnight of the New York Academy of Medicine, to be held October 11-22, 1943: Arthur F. Chace, "Welcome Address"; Harold G. Wolff, "Emotions and Gastric Function"; Asher Winkelstein, "Recent Advances in the Therapy of Peptic Ulcer"; Rustin McIntosh, "Disorders of the Gastrointestinal Trace in Children"; Ralph Colp, "Postcholecystectomy Syndrome and Its Treatment"; Allen O. Whipple, "Recent Advances in the Surgery of the Pancreas"; Lieut. Colonel Thomas T. Mackie, "Amebiasis and the Flagellate Diarrheas"; William L. Watson, "Treatment of Diseases of the Esophagus"; Henry W. Cave, "The Surgical Management of Certain Diseases of the Colon"; Ross Golden, "Diagnosis of Gastrointestinal Lesions by Means of X-Ray and Gastroscopy"; Walter A. Bastedo, "Use of Sulfonamides in Gastrointestinal Diseases."

• • •

The New York City Department of Health announces that it may have some vacancies in ophthalmologic positions in the Bureau of Child Hygiene, which has set up clinics in schools and health centers to which indigent children of elementary school age are admitted for refractions. No eye diseases are treated.

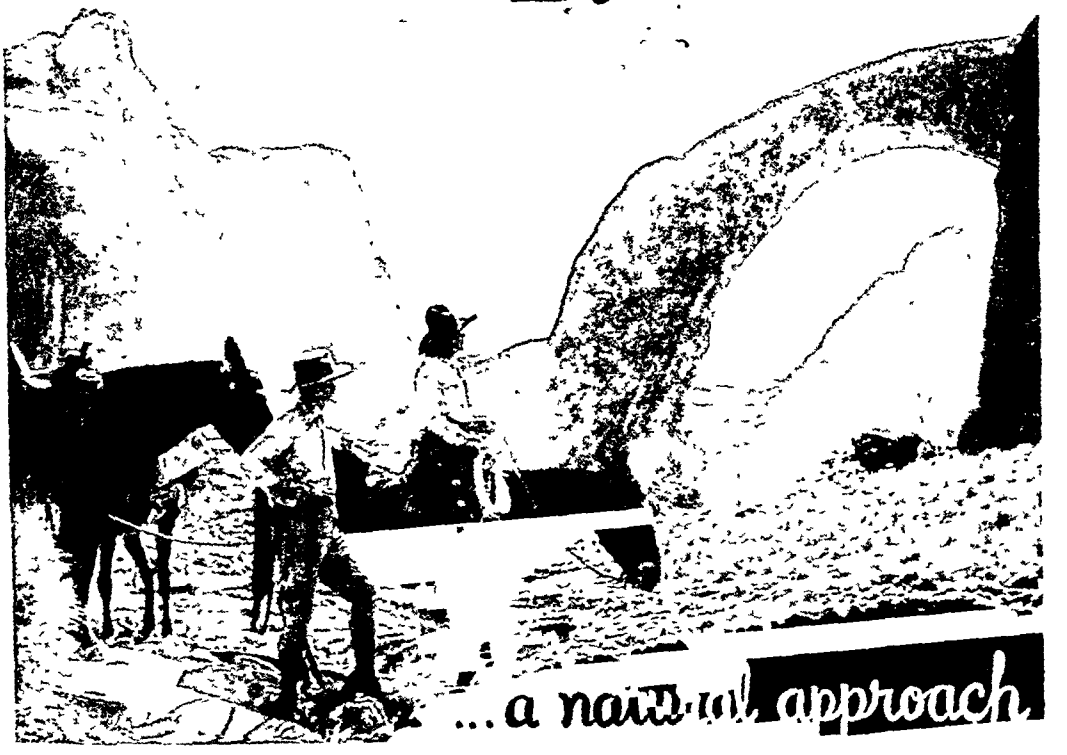
The specific duties of the ophthalmologists are: (1) recording visual acuity; (2) color testing by Stillings chart; (3) noting external abnormalities; (4) testing for phorias and tropias; (5) retinoscopy under cycloplegia; (6) examination of the fundus oculi; (7) postcyclopegic test and prescription of glasses; (8) checking new glasses for accuracy; (9) re-examinations after six months or a year; (10) referral of children with high myopia and other types of poor vision to sight conservation classes.

At the present time there are no Civil Service lists from which qualified persons can be secured to fill these positions. Physicians who would be interested in possible openings in this field should communicate in writing with the Director of Eye

[Continued on page 1886]

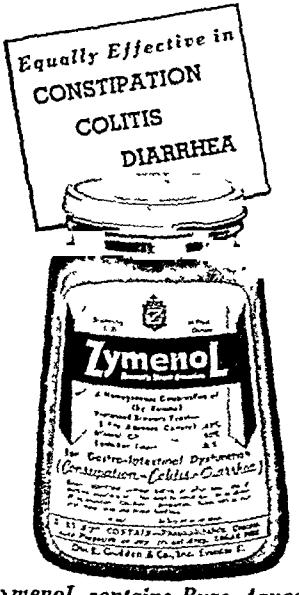
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Evanston, Illinois

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[Continued from page 1884]

Clinics, Bureau of Child Hygiene, 125 Worth Street, Manhattan.

• • •

Dr. McKeen Cattell, associate professor of pharmacology in charge of the department, Cornell University Medical College, has been promoted to professor of pharmacology and head of the department. Dr. John M. McLean has been promoted to professor of clinical surgery (ophthalmology).

• • •

The New York Academy of Medicine recently announced the establishment of two new funds to assist in the support of its educational projects. One, the George R. Siedenburg Memorial Fund, was established to defray expenses in connection with lectures given at the academy. The second is an endowment in perpetuity of the Graduate Fortnight and was created by R. Thornton Wilson as a memorial to his wife, Frances Elizabeth Wilson.

Oneida County

Dr. Newton J. T. Bigelow, former clinical director of the Utica State Hospital, who has been appointed superintendent of the Hudson River State Hospital, will be "loaned" to act as assistant commissioner of mental hygiene for the State of New York.

Dr. Bigelow left Utica in August, 1940, to become first assistant physician in Pilgrim State Hospital, L.I., and while in that position he has been assistant neurologist in the Vanderbilt Clinic, New York, and an associate editor of the Psychiatric Quarterly.

Dr. Richard H. Hutchings, under whom Dr. Bigelow served in the Utica institution, said that the appointment to the state post was made by Commissioner Frederick McCurdy, M.D., from a competitive Civil Service list.

According to Dr. Hutchings, Dr. Bigelow will live with his family in Poughkeepsie, but will spend a part of each week in Albany.

Dr. Bigelow will "fill the military absence of the present assistant commissioner," Dr. Hutchings explained. That executive, Dr. H. Beckett Lang, himself served for some time in the Marcy State Hospital. He was called to active duty with the U.S. Naval Reserves, and will be in service for the duration.

Ontario County

Dr. George Wineburgh, of Utica, who has been honorably discharged as an officer from the Army after eighteen months' service, has opened an office for the practice of medicine in Utica. His rank was that of first lieutenant.

Dr. Wineburgh served his internship at Bellevue Hospital, New York, and became resident surgeon in Meadowbrook Hospital, after which he entered private practice in Naples, New York.*

Orange County

Dr. Elias W. Young, who has been located at Cambridge for a few years, has moved to Goshen. He fills the need felt after the retirement of Dr. Ralph McGeoch because of illness. For a time Dr. Roy L. Lippincott was Goshen's only physician.

• • •

Dr. Oscar Ehrenhaft, a graduate of the University of Vienna in 1933, has opened an office for the practice of medicine in Montgomery.

Dr. Ehrenhaft practiced in hospitals in Vienna and also carried on a general practice before coming to America. He has practiced one and one-half years in Stamford Hospital, Stamford, Connecticut, and for the past year has been house physician in Horton Hospital, Middletown.*

Rensselaer County

Dr. Stewart H. Jones, practicing physician in Troy for the last six years, has been extended a fellowship for study and research at the Lahey Clinic, Boston, and will assume his duties there about October 1.

The fellowship provides for internal medicine and for general medical research. Dr. Jones is believed to be one of the first Troy physicians to be extended a fellowship by the clinic.

A native of Troy, he studied at McGill University and later at Albany Medical School, starting private practice in 1937. He is a member of the medical staff of the Samaritan Hospital.*

• • •

Two Rensselaer County doctors with the U.S. Army Medical Corps have received new assignments to the Mayo Clinic in Rochester, Minnesota, where they will take a special three months' course in physical medicine and surgery. They are Capt. Frank A. DeLucia, of Troy and Capt. Cyrus E. Davis, of Watervliet.

Captain DeLucia is a graduate of La Salle Institute, Niagara University, and Loyola Medical School, and served his internship at the Troy Hospital. He is also a member of the staff of that hospital, and of the New York State Medical Society, A. M. A., and Junior Fellow of the American College of Surgeons. He was commissioned last September and first was assigned to Camp Pickett, Virginia.

Captain Davis is a graduate of Watervliet High School, Syracuse University, and Syracuse Medical College.*

Saratoga County

In an effort to establish a schedule of fees for the treatment of welfare cases, a committee under the chairmanship of Dr. I. Ben Rubin, of Charlton, has presented a plan to the county Board of Supervisors.

According to the plan, in addition to their regular paid practice, physicians will be permitted to charge for the care of all public assistance cases, whether the patients are treated in homes, the doctor's office, or in hospitals. The doctor may charge $2.00 for a house call within two miles of his office, the amount chargeable increasing each two miles up to $5.00 for a call more than eight miles distant. Office calls are $1.00 and an extra allowance of $1.00 is made for night calls and for additional patients in the same household.

Special fees have also been drawn up for operations and other courses of treatment that require extensive care.

Wayne County

Dr. George D. Winchell, Rose physician and county coroner for more than twenty years, was honored on August 10 for his completion of fifty years in the practice of medicine. The occasion was marked by a dinner given by the county society at the Newark Country club.

Principal speaker of the evening was Dr. C. M. Lee, of Clifton Springs, who served as head of the St. Andrew's Hospital of the American Church Mission in Wusih, China, before he was returned to the United States on the diplomatic exchange ship Gripsholm a year ago.

Multi-BARRELED THERAPY
FOR *Multi*-AVITAMINOSES

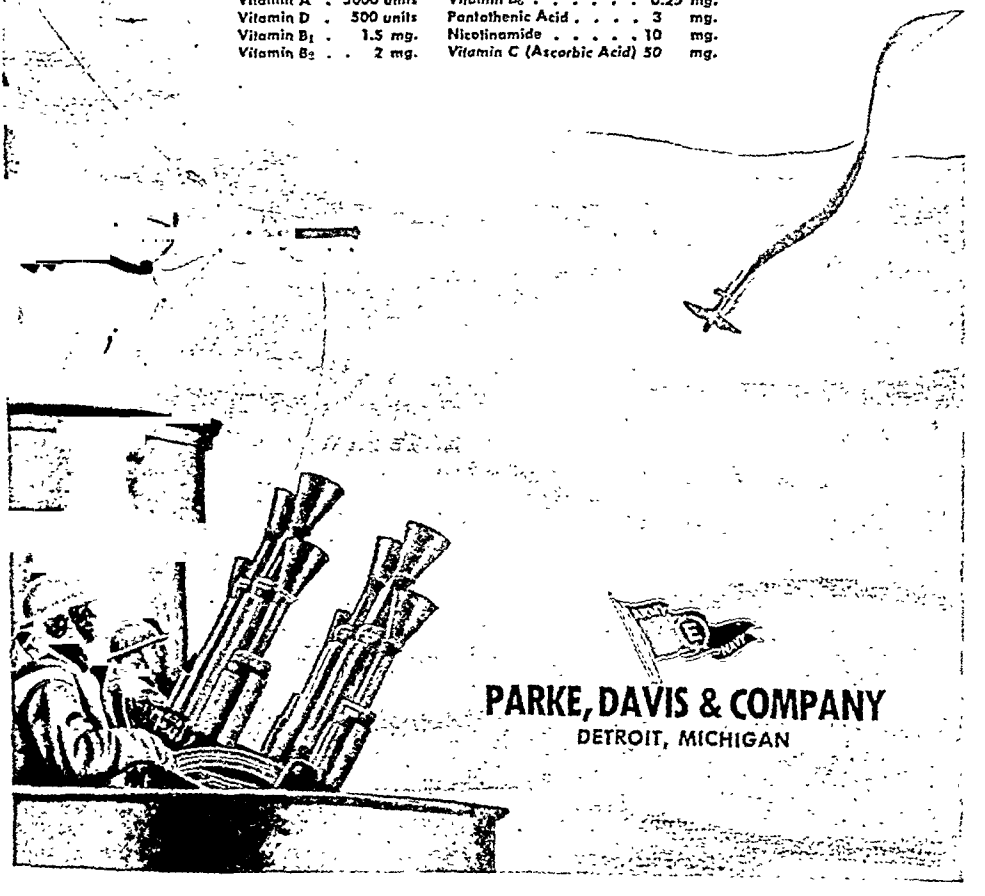
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Vitamin A	5000 units	Vitamin B_6	0.25 mg.
Vitamin D	500 units	Pantothenic Acid	3 mg.
Vitamin B_1	1.5 mg.	Nicotinamide	10 mg.
Vitamin B_2	2 mg.	Vitamin C (Ascorbic Acid)	50 mg.



PARKE, DAVIS & COMPANY
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Hospital News

Dedication of New Children's Hospital in Mexico City

By A. L. Van Horn, M.D.

Assistant Director for Crippled Children, Division of Health Services, U.S. Children's Bureau

IT WAS my privilege to serve as representative of the Chief of the Children's Bureau at the dedication of the Hospital Infantil in Mexico City on May 29, 1943.

This hospital is the first children's hospital built by the Government of Mexico and is the second hospital to be completed in the new medical center now under construction. The building is of concrete construction, is modernistic in style of architecture, and has six floors. It has a capacity of 550 beds for children of all ages from newborn infants up to 14 years of age.

Facilities and services of the hospital include an outpatient clinic, with adjoining laboratories for special diagnostic services, inpatient facilities for pediatrics, orthopaedic surgery, general surgery, otolaryngology, ophthalmology, neurology, and dermatology services, as well as special provisions for physiotherapy, occupational therapy, educational services, and social services. One unit has been specially designed for the care of premature infants.

There are also a breast-milk station and a well-equipped milk laboratory.

The department of nutrition, which is responsible for the preparation of food for child patients and employees, is staffed by persons trained in dietetics and is furnished with mechanical refrigerators and other modern equipment.

Experienced educational-therapy workers will teach invalid or crippled children occupations that they will be able to continue after leaving the hospital, instruct them in their school subjects so that they need not fall behind, and help them in other ways to spend the time in the hospital usefully and pleasantly.

The department of social services is responsible for studying the economic and social conditions of the families of the sick children in order to help them in any way possible and to determine how much of the cost of the child's care they should be asked to pay. The charges will be moderate, and treatment will be free for those whose families are unable to pay.

Hospital Infantil will be used as a teaching hospital for the medical school of the National University and has lecture rooms, classrooms, and student laboratories located in the building.

The hospital will be under the immediate direction of Dr. Federico Gómez, a prominent pediatrician of Mexico City, who has been interested for many years in the development and construction of a children's hospital in that city. There is a full-time resident staff of physicians, many of whom have had recent training in pediatrics in the United States. A group of graduate nurses from Mexico who have also received training in pediatric nursing in the United States will serve as supervisors in various units of the new hospital. There is also a full-time staff of roentgenologists, pathologists, bacteriologists, physical therapists, and so forth.

Dr. Juan Farill, an orthopaedic surgeon of Mexico who is well known in the United States, has been designated chief of the orthopaedic service in Hospital Infantil.

A descriptive leaflet, *Hospital Infantil de México*, with photographs of the hospital and its various departments, has been issued by the Secretaria de la Asistencia Pública, Mexico.—*The Child*

Drive to Recruit Student Nurses

AT A forum meeting attended by 300 hospital and nursing school executives in New York City, Dr. Thomas H. Parran, Surgeon General of the United States, launched a drive to recruit 65,000 student nurses for the new United States Cadet Nurse Corps, which was authorized by Congress in June.

Under the plan, grants will be made by Congress to hospitals and nursing schools which submit schedules showing that their training program can be accelerated to meet the requirements. Students enrolled in the corps must pledge that they will engage in essential nursing, either in military or civilian fields, for the duration of the war.

Latest reports indicate that the Cadet Nurse Corps is growing rapidly, with nursing school enrollments markedly increased. Superintendents of several schools have pointed out that many students who could not otherwise have afforded the expense of training are now able to register.

Meanwhile, the Office of War Information reported that because of the nurse shortage, many hospitals staffs are so badly depleted that patients must be turned away, even though beds are empty.

The problem is made even more acute by the steadily increasing industrial accidents and epidemics.

Army Budget for 1944 Provides $52,000,000 for Hospital Facilities

The 1944 budget for the fiscal year ending June 30, 1944, of the medical and hospital department of the War Department provides a sum of $446,212,000 to cover numerous items. Some of these are as follows:

Manufacture and purchase of hospital supplies; expenses of medical supply depots and maintenance of branch depots; medical care and treatment of patients entitled to such care, payments to male and female nurses, not including the Army Nurse Corps, to interns, and to civilian physicians employed to examine applicants for enlistment and enlisted men and to render other professional services from time to time under proper authority.

An official in the Office of the Surgeon General of the Army said in an interview August 14 that the 1944 budget provides $40,000,000 for hospital beds in addition to a fund of $12,000,000 for the provision of additional construction and facilities for posts, camps, and stations where small hospitals are needed,

[Continued on page 1890]

An Important Announcement Concerning

PENICILLIN

MERCK

THE discovery, production, and clinical evaluation of the new chemotherapeutic agent, Penicillin, constitute a signal advance in medicine's relentless warfare against disease.

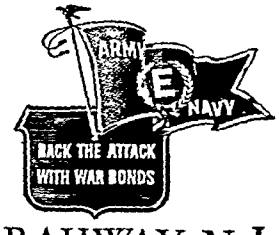
Penicillin has proved to be extremely effective in the treatment of infections produced by the hemolytic staphylococcus aureus, the pneumococcus, hemolytic streptococcus, and gonococcus. In general, Penicillin is not effective against gram-negative organisms, with the exception of the gonococcus and meningococcus. It has not been found effective in the treatment of subacute bacterial endocarditis.

In vitro studies indicate that Penicillin will prove to be effective against a variety of other organisms. However, clinical experience to date has been limited primarily to infections caused by the aforementioned organisms, in conformity with the predetermined objectives of the Committee on Chemotherapeutic and Other Agents of the National Research Council.

The production of Penicillin is a difficult and delicate microbiologic procedure. Because of the difficulties involved in producing even limited quantities of this substance, it has been necessary to exercise strict control of its distribution, in order that supplies might be available for essential investigation. The Committee on Medical Research of the Office of Scientific Research and Development therefore appointed the Chairman of the Committee on Chemotherapeutic and Other Agents of the National Research Council to supervise the distribution of all stocks available for clinical research. At the present time, the Chairman of the latter Committee is supervising allocations of Penicillin in accordance with Order No. M-338 of the War Production Board.

Intensive research begun in the Merck Research Laboratories in the autumn of 1940, and carried on continuously ever since, is devoted to the development of methods by which this remarkable substance may be produced in ever-increasing quantities. Every effort is being made to expand production further for the benefit of our Armed Forces and, as soon as adequate quantities can be made available, for our civilian medical needs.

★ *Copies of the recently published brochure,* Penicillin Merck—Its Action and Uses, *containing full color and halftone illustrations, are available on request.*



MERCK & CO., Inc. *Manufacturing Chemists* RAHWAY, N.J.

[Continued from page 1888]

and for additional training of personnel. It provides $73,000,000 for the medical department of the Navy's Bureau of Medicine and Surgery.

The Veterans Administration has been granted $4,557,000 from the 1944 budget to provide for hospital and domiciliary facilities.—*The Modern Hospital, September, 1943*

Hospital Moved by Air

A complete provisional hospital was moved by air from one side of Sicily to the other during the conquest of the island, it was announced on August 24.

It was the first time in battle history that such a feat had been performed.

Within two and a half hours from the time the move started, the hospital was set up to receive 50 patients, said Col. Edward D. Churchill, of Boston.

Ten big transport planes were used to carry the hospital 44 miles from Agrigento, on the south coast, to Termini, on the north coast.

The planes were packed in twenty-two minutes with such assorted items as a water trailer, two jeeps, litters, blankets, admission tent, pyramidal tents, ward tent, and kitchen rations for 200 men and 120 officers, nurses, and enlisted personnel.*

Annual Hospital Drive Opens

THE sixty-fifth annual United Hospital drive, with a goal of $1,457,120, was opened the last week in September.

At a dinner held at the Hotel Commodore on September 27, Lewis W. Douglas, deputy administrator of the Shipping Administration, and Demaree Bess, associate editor of the *Saturday Evening Post*, were the speakers. The campaign in Brooklyn was launched at a luncheon in the Hotel St. George on September 28. Betty Smith, author of the novel *A Tree Grows in Brooklyn*, and Captain Maurice Witherspoon, Navy chaplain who recently returned from the Aleutians, were the guest speakers.

The purpose of the campaign is to raise funds for seventy-six nonprofit corporations operating eighty-eight voluntary organizations in New York City.

Improvements

Formal dedication of the new Sidney Hospital took place Sunday, August 15, with a brief ceremony followed with an inspection by the public.

The three-story brick structure will house a total of 29 patients, not including fourteen bassinettes. There are two 4-bed rooms and six 2-bed rooms, the remainder being single rooms.

Miss Helen Brockway, who has been named superintendent of the hospital, was former assistant superintendent of the Chenango Memorial Hospital at Norwich. She also served for a time as superintendent of a hospital in Port Jervis. Present plans call for a staff of 25 in addition to Miss Brockway. This number will include 18 nurses and 7 general hospital workers.

There will be no resident physician for the duration, due to the shortage of doctors, but Dr. Ralph H. Loomis has been named chief-of-staff.

President of the hospital Board of Directors is Dr. Joshua E. Sweet, retired professor of surgical research, of Unadilla.*

• • •

Work on building the extension to Van Duzee Hospital in Gouverneur was begun recently.*

• • •

A blood and plasma bank has recently been installed and put into operation in the Arnot-Ogden Memorial Hospital in Elmira through a grant by the government Office of Civilian Defense. The grant by the government calls for the preparation of about 220 pints of undiluted frozen human plasma which will be kept available for use by the civilian defense authorities. Any plasma used for hospital patients will be replaced to maintain the required amount. The bank consists of two units—a blood-letting room and a separate room for the processing and storage of plasma. The bank is equipped with a refrigerator and deep-freezing cabinets and has a special optical and acoustic alarm system for detection of mechanical and power failure.

• • •

Two checks providing funds to equip a semiprivate room in the maternity section of the new Ilion Hospital annex were presented recently to Mrs. Helen C. Anthony, the superintendent.

The presentations were made by the Ilion Lodge, Royal Order of Moose and by the Women of the Moose.

• • •

A proposal to start work on preliminary plans for construction of a three-story addition to the Jamestown Hospital as a postwar project was accepted recently by the Health and Hospital Board of the city.

• • •

The opening of the 32-bed remodeled east wing of the Geneva General Hospital was observed with an open house and reception to which citizens of Geneva were invited. Members of the first class of the Keuka College School of Nursing were ushers.

At the Helm

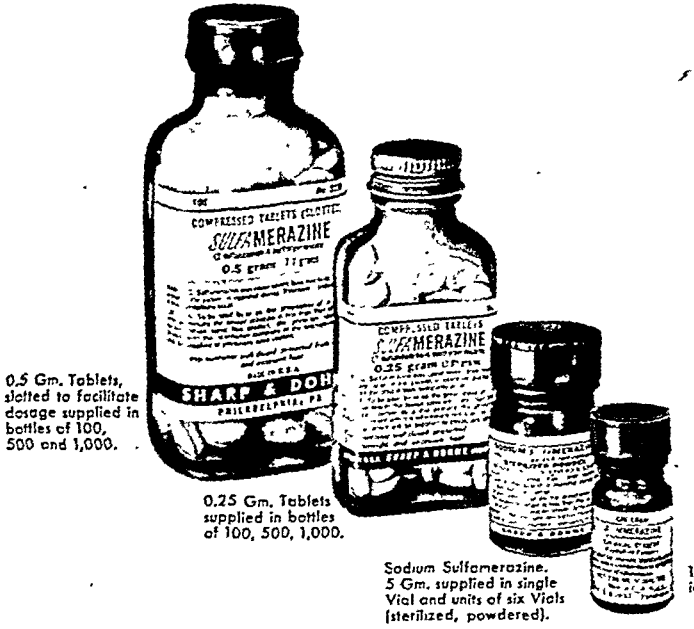
Dr. Orton Eugene White, secretary of the Massena Medical Society, has reported that the staff recommended by the society for the new Massena Memorial Hospital has been approved by the hospital board of managers.

The hospital staff is as follows:

Chief surgeon, Dr. Thomas W. Watkins, Pots-

*Asterisk indicates that item is from local newspaper.

[Continued on page 1890]



0.5 Gm. Tablets, slotted to facilitate dosage supplied in bottles of 100, 500 and 1,000.

0.25 Gm. Tablets supplied in bottles of 100, 500, 1,000.

Sodium Sulfamerazine. 5 Gm. supplied in single Vial and units of six Vials (sterilized, powdered).

1 Gm. Vial of chemical reagent.

NOW . . .

SIMPLIFIED • ECONOMICAL • SULFONAMIDE THERAPY

• *The Medical-Research Laboratories of Sharp & Dohme have developed a new compound which will simplify dosage and lower costs in sulfonamide therapy. This remarkable product is called SULFAMERAZINE. Its chemical designation is 2-sulfanilamido-4-methylpyrimidine (methylsulfadiazine).*

In comparison with sulfadiazine, sulfamerazine is more rapidly and completely absorbed from the gastro-intestinal tract and more slowly eliminated by the kidneys. Thus, smaller or less frequent doses of sulfamerazine are necessary to produce and maintain therapeutic concentrations of the drug in the blood and tissues.

Moreover, free and acetylated sulfamerazine are slightly more soluble in neutral or acid urine than are the corresponding forms of sulfadiazine. For these reasons, the possibility of drug concretions in the urinary tract should be less with sulfamerazine.

The less frequently required doses of sulfamerazine reduce sulfonamide therapy to more economical terms. In diseases in which four to six doses of sulfadiazine (or other sulfonamide) are given daily, the same therapeutic results may be obtained with a minimum of inconvenience to the patient and at proportionately lower cost.

• • •

Sulfamerazine tablets are administered by mouth in the treatment of infections caused by pneumococci, streptococci, meningococci and gonococci. Solutions of sodium sulfamerazine are given intravenously.

Moreover, the smaller effective dose and longer retention of sulfamerazine have suggested the new drug's value as a prophylactic against certain infections such as rheumatic fever and gonorrhea. It is no more toxic than sulfadiazine and appears to be even safer, especially with regard to the possibility of urinary complications.

Detailed information may be obtained upon request from the Medical-Research Division, Sharp & Dohme, Philadelphia (1), Pa.

SULFAMERAZINE

[Continued from page 1890]

dam; medical service, Dr. F. C. Mason, chief, Dr. C. E. Elkins, Dr. C. F. Prairie, Dr. U. R. Plante, Dr. R. F. McAloon, Dr. P. T. McGreevy, Dr. Elizabeth Fulton, Dr. R. D. Samets; obstetrical service, Dr. McAloon, chief, Dr. Fulton, Dr. Prairie, Dr. Plante, Dr. McGreevy, Dr. Samets; eye, ear, nose, and throat, Dr. O. E. White, chief; radiology, Dr. McGreevy, chief; pathology, Dr. J. H. Peers, Ogdensburg, chief.

The consultants listed are: surgery, Dr. J. E. Free, Ogdensburg; Dr. R. G. Perkins, Malone; Dr. L. T. McNulty, Potsdam; medicine, Dr. W. J. Baldwin, Potsdam; Dr. R. J. Reynolds, Potsdam; Dr. R. L. Stacy, Ogdensburg; Dr. J. R. Patton, Ogdensburg; eye, ear, nose, and throat, Dr. M. J. Stearns, Ogdensburg; and Dr. S. J. Cattley, Ogdensburg; radiology, Dr. A. A. Hobbs, Ogdensburg; psychiatry, Dr. J. A. Pritchard, Ogdensburg.

Miss Mildred Higgs, former superintendent of the Van Duzee Hospital at Gouverneur, will be superintendent of the institution. Her assistant will be Miss Mildred Morrison.*

* * *

The seventy-third annual report of the Manhattan Eye, Ear, and Throat Hospital, in New York City, revealed that 45 members of its medical staff and 4 of the hospital directors had entered the armed forces. In reviewing the wartime conditions faced by the hospital, its president, Henry J. Fisher, said that the volunteer department, organized to meet the problem of personnel shortage and consisting of nurses' aides, assistant orderlies, and others, now had 140 members.

The report announced the establishment of a new x-ray therapy department at a cost of $22,106. The equipment includes a new diagnostic portable unit and two treatment machines, one for high-voltage x-ray therapy employed in deep cancer cases and another used in combating cancers on the surface. A new fluoroscope also has been added.*

* * *

Miss Margaret Smiley, superintendent of Cohoes Hospital for the last year and a half, has submitted her resignation from that post.

Miss Anita Prouty, who has been assistant to the hospital administrative head, has been named acting superintendent of the institution.*

* * *

Dr. Charles Oberling, who during the past year has been the pathologist of the Mary Imogene Bassett hospital in Cooperstown and director of the Otsego County laboratory, recently returned from Buenos Aires. He had been sent on a special mission to Iran for the Fighting French. Because of ill health, Dr. Oberling was compelled to give up the Iran mission and has returned to Cooperstown. His health is now very much improved and he has resumed his position as pathologist of the hospital and director of the Otsego County laboratory.*

* * *

L. William Coon took over his position as superintendent of Jones Memorial Hospital, in Wellsville, in August. Mr. Coon had been superintendent of the Corry Hospital in Corry, Pennsylvania, for the past two years. He succeeds Miss Florence Spicer who resigned the position July 1 after twenty-two years of service.*

* * *

On June 30, the census of the Wyoming County Community Hospital in Warsaw was 93. During July 288 patients were admitted and 49 babies were born, the total resulting in 430, with 3,130 patient days' care. The average daily census was 101. The total number of operations performed was 190.

During recent months it has been increasingly hard to secure local doctors, whose numbers have grown smaller, for the administration of anesthetics. Therefore, a full-time anesthetist has been engaged. She is Miss Aurelia Clapham, R.N., of New York, who began work on July 1. Miss Clapham is a graduate of Roosevelt Hospital School of Nursing and served five years there as anesthetist before coming to Warsaw.*

* * *

Miss Elizabeth Brownell, a graduate of Prospect Heights Hospital, in Brooklyn, has been engaged as supervisor at the Littauer Hospital in Gloversville and assumed her duties September 1.

In becoming a member of the hospital staff, Miss Brownell will be assigned as supervisor of the men's medical and surgical floor. For some time this post has been temporarily filled by other members of the staff.

* * *

Rounding out a term of forty-two years' service with the Hudson River State Hospital in Poughkeepsie, Dr. William J. Cavanaugh, senior assistant physician of the hospital, was presented with several farewell gifts on behalf of the Hudson River State Hospital Employes Association.

Dr. Cavanaugh is retiring from the hospital staff because of illness.*

* * *

William H. Zinsser, president of Lenox Hill Hospital, in New York City, and a trustee of the United Hospital Fund, is chairman of the sixty-fifth United Hospital Campaign, which opened September 27.

Mr. Zinsser, in accepting the post, said that $1,457,120 must be raised in this second war year to meet the needs of 76 member corporations of the fund operating 88 voluntary, nonprofit institutions for the care of the sick.

* * *

Sister Mary Rita, superintendent and superior at the Mercy Hospital in Watertown, has been transferred to the Mercy General Hospital in Tupper Lake, and Sister Mary John, former superior at Brasher Falls, has been appointed to fill the position at the Watertown hospital.

Sister Mary Firmina, who was also a member of the staff of the Mercy Hospital has been assigned to St. John's High School in Plattsburgh, where she will be a teacher and school nurse.

* * *

James R. Clark, director of the Southside Hospital in Bay Shore, L. I., will resign his position soon to direct the Washington office of the American Hospital Association, it was announced recently. Mr. Clark has been director of the Bay Shore hospital for the past eight years.

[Continued on page 1894]

Toward 100 Per Cent War Effort

Getting people back on their feet—and keeping them on their feet—is the ultimate goal in medicine. Today, as never before, it is important to help everyone stand on their own so they may the better serve to achieve the 100 per cent efficiency aimed at in our war efforts. In our profession, the goal is closely allied to yours—by helping you to provide proper footwear we feel that our job is an important one, too. If experience and determination to be first in things that count in footwear is important to you, we suggest you let your patient try Pediforme shoes.

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[Continued from page 1892]

Newsy Notes

The Hospital for Joint Diseases in New York City, which has been designated a Casualty Station, keeps thirty vacant beds in addition to emergency rooms in readiness to receive wounded who might be brought to the hospital. In spite of this and other war measures, its report for 1942 reveals that normal current operations continued during that year at the peacetime level.

• • •

The Mount Sinai Hospital in New York City, in affiliation with Columbia University, will offer post-graduate courses for the general practitioner in the following subjects from October 25 to December 18, 1943: allergy, chemistry, dermatology, gynecology, medicine, neurology, ophthalmology, orthopaedics, pediatrics, and therapy. Courses will be given for specialists in: anesthesia, ophthalmology, and proctology. Application should be made before October 11, 1943. Requests for information should be sent to the Secretary for Medical Instruction, Mount Sinai Hospital, Fifth Avenue and 100 Street, New York 29, N.Y.—*Journal of the Medical Society of the County of New York*

• • •

Staten Island's quota of $9,000,000, in the Third War Loan Drive will be earmarked for the complete construction and operations cost of Halloran General Hospital, it was announced today by Richard H. Crowe, co-chairman of Staten Island Division of the War Finance Committee. Cost of building the hospital alone was $12,000,000,000.*

• • •

The Monticello Hospital benefit on August 18 netted approximately $4,000 for the hospital.*

• • •

Associated Hospital Service of the Capital District, in and around Albany, the Blue Cross Plan, now has 84,990 subscribers, it has been announced by E. R. Evans, executive director. New members are being added at the rate of 1,500 a month, he said, in the 11 counties of northeastern New York.

In six years, Mr. Evans reported, the service has paid 28,547 hospital bills, amounting to $1,640,639.

The report was made in conjunction with a statement by C. Rufus Rorem, director of the American Hospital Association's service plan commission, in which he said the 77 Blue Cross Plans would pay more than 1,200,000 hospital bills amounting to $65,000,000 this year.*

• • •

Plans for enlarging the United States Naval Hospital at St. Albans, Queens, which was commissioned on February 15, were announced recently. The hospital has 41 wards now with accommodations for more than 1,800 patients. By the time the weather gets cold, when more disease cases are expected, 31 wards will have been added, increasing the normal capacity to 3,000 and giving the institution a possible capacity of 4,000.

In addition to new ward buildings, there will be an auditorium with seats for 750. At present entertainments are given in a small ward with a makeshift stage. There are also to be barracks for Waves, additional quarters for nurses, a new mess hall, and increased occupational therapy facilities.

The hospital is a widespread, one-story building with two main corridors at right angles. The longer and wider of these, known as Broadway, is about a quarter of a mile long. The transverse corridor is known as Forty-second Street. Both are crowded with physicians, nurses, attendants, and patients throughout the day.

The hospital is commanded by Captain Lester L. Pratt, U.S.N. Under his command are 89 officers, 12 interns, 202 nurses, 509 hospital corpsmen, 62 hospital corps Waves, and 44 Waves under instruction for hospital corps duty.*

• • •

The Binghamton City Hospital Board of Managers have approved a tentative 1944 budget which is approximately $20,000 below that for the current year.

Supt. Jerome F. Peck, who presented the estimate to the board, reported that the cut is possible because of the increased number of paying patients and a decrease in the number of welfare clients.

"More people are working and more people are able to pay," Mr. Peck explained. As a result hospital revenues have climbed.*

• • •

"Refrigeration anesthesia" was used for the first time at the Batavia Hospital when the lower right leg of a patient was removed.

Physicians explained that the leg was frozen by being placed inside a rubber sheet in a specially constructed trough filled with cracked ice for two hours before the operation began. The area frozen extended from a point just above the knee and the amputation was made about six inches below the knee.

The patient remained conscious throughout the operation. He had been suffering from diabetic gangrene.

The new shockless, drugless, painless surgery was declared a success with the patient's progress reported as "very good." Dr. Sidney L. McLouth, of Corfu, home physician, and Dr. Ward B. Manchester, Batavia surgeon, performed the operation.

Medical history has several times noted the effects of cold, one of Napoleon's surgeons finding that the intense cold of the Winter retreat from Moscow made amputations almost painless.*

• • •

The camp and hospital committee of the Red Cross organized for its assigned work of supplying needs of Rhoads General Hospital in Utica at a meeting on August 13.

• • •

Representatives of all veterans' organizations, service clubs, and other religious and fraternal groups in the city met with the committee, whose duties will be to supply articles for the hospital which the Army is unable to obtain.*

• • •

Bequests in the will of the late Mrs. Harriette M. Arnold, of New York City, included $100,000 each for New York Hospital and St. Mary's Hospital for Children; $50,000 each for New York Medical College, Flower and Fifth Avenue Hospitals, Presbyterian Hospital, Roosevelt Hospital, Lying-In Hospital, New York Society for Ruptured and Crippled, and Downtown Hospital; $25,000 for Manhattan Eye, Ear, and Throat, Hospital; and $10,000 for St. Andrew's Convalescent Hospital. St. Luke's Hospital received a share of the residuary estate.*

A FIELD FOR GASTROENTEROLOGISTS

A woman writing to the *Saturday Evening Post* to comment on an article "Camels Hate Everybody," said:

"My cousin who spent several years in Mesopotamia, said that there is a legend to the effect that the reason for the camel's supercilious aspect and character is that he is the only creature who knows God's first name."

Replying to this the *Post* editor remarked, "That is a poetical and mystical postulate, but logic refutes it. If camels were the only creatures who know God's first name, they would have to know God, for no other creature could have told them. If they knew God, however, they wouldn't hate, at least not according to our Bible.

"We are inclined to the belief that the reason camels are acerbic is a generic tendency to multiply dyspepsia. A camel who has sowed his wild oats is, like anybody else, subject to the law of compensation. Mr. Dempewolff (author of the article in discussion) makes amply clear that camels do sow such oats, running the full gamut of wine (when they can get it), women and song. The result is inevitable psychological hangovers which become anxiety neuroses. Anxiety neuroses can and do produce dyspepsia and even ulcers of the stomach—or in the case of camels ulcers of the stomachs.

"Well, there it is. Suppose you alone knew God's first name and that you had four stomachs and were sick at all of them. Why would you hate everybody? Because you knew God's first name?"

* * *

LITTLE—BUT OH MY!

The expense of buying a baby has been a familiar quotation for as long as any of us can remember, but consider the expense of the upkeep.

Just a small list of baby supplies published, accounted for two sizes of nursing bottles, two types of nipples, bottle caps, absorbent cotton, baby oil, baby powder, baby soap, baby cream, cotton tipped swabs, rectal thermometer, bath thermometer, bottle warmer, sterilizing set, graduated measuring cup, covered glass jars, bottle brush, tongs, funnel, strainer, measuring spoons, diapers, bathinette, safety pins, towel and wash cloth sets, fine tooth comb, hair brush, weighing scale and miscellaneous drug items.

And this does not take into consideration the hundred and one items such as blankets and other bedding, carriage, clothes and the ever increasing needs as the baby grows and ages.

So it can't be the "down payment" that hurts—it must be the never-ending installments.

* * *

"While some of us were feeling just about crushed for want of gasoline and nylon stockings and porterhouse steak, the naval engineers were lifting the 79,000-ton Normandie out of the North River mud. They said, 'Difficult things we do immediately; the impossible takes a little longer,' and 'There's nothing humans cannot do if they set their minds to it.'"

—The New York Times Magazine

* * *

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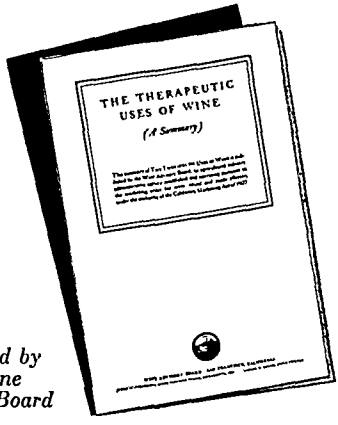
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AN entire generation of physicians lost touch with the medical lore of wine in the United States following the first World War. Actually, however, few other substances have been as widely recommended. This monograph, which summarizes the pertinent scientific literature in the interest that fact be separated from folklore by the application of impartial analysis, will prove of interest and value to specialists in many fields, and to the general practitioner as well.

A section on wine as a food is included. The actions of wine on the gastro-intestinal system, the cardio-vascular system, the genito-urinary system, the nervous system and the muscles, and the respiratory system are discussed. The uses of wine in diabetes mellitus, in acute infectious diseases and in treatment of the aged and convalescent are dealt with. There is a section on the value of wine as a vehicle for medication. Also an important section on the contraindications to the use of wine. Those who wish to pursue the subject further will find an extensive bibliography.

This review results from a study supported by the Wine Advisory Board, an agricultural industry administrative agency established under the California Marketing Act, and has been sponsored by the Society of Medical Friends of Wine.

Members of the medical profession are invited to write for this monograph. Requests should be made to the Wine Advisory Board, 85 Second Street, San Francisco.

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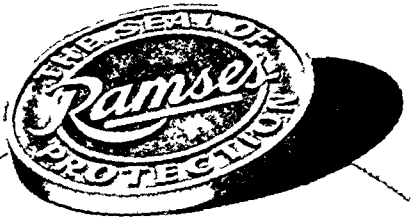
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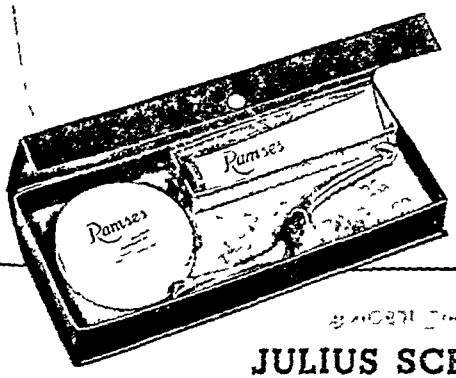




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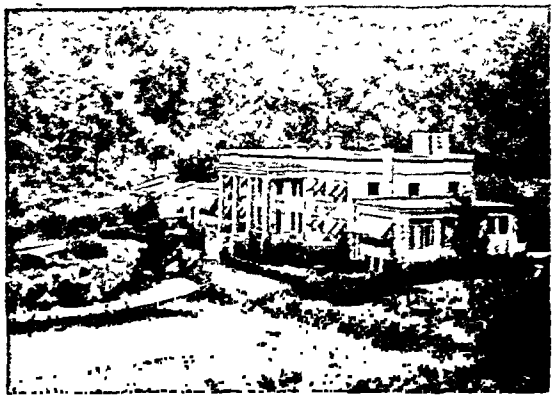
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SKIN GRAFTING WITH ICE

Successful use of refrigeration anesthesia to banish pain during skin grafting operations is reported by Lieut. Harry E. Mock, Jr., of the U.S. Army Medical Corps (*Journal of the American Medical Association*, June 26).

Ice bags are tied or bandaged over the area from which the skin is to be taken. They are left in place for two hours. This chills the skin so thoroughly that it is completely insensitive to pain. The pain-deadened condition lasts for about twenty minutes after the ice bags are removed, giving the surgeon time to remove the skin, which is then put in its new place and the wounds bandaged. The procedure is so simple that for small grafts the operation can be carried out in the patient's bed without having to use the operating room.

Only three of 27 patients felt anything with the refrigeration anesthesia. These three complained of a burning sensation when the graft was cut but it was not so acute that any other anesthetic had to be used.

In 23 of the 27 cases successful grafts were obtained. In the four failures, the cause was attributed to error in judgment about the extent of infection and not to the refrigeration anesthesia.

The idea for using ice bags instead of anesthesia to make skin grafting painless came from an observation in amputation cases. Refrigeration was also used in these cases. Some who have been using this method discovered that the pain of the tourniquet which has to be applied before amputation of an extremity was decreased by previously chilling the tissues with ice bags. Lieutenant Mock and associates corroborated this finding and noticed that the ice bags were completely anesthetizing the skin.—*Science News Letter*



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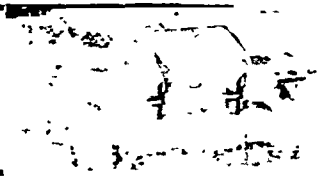
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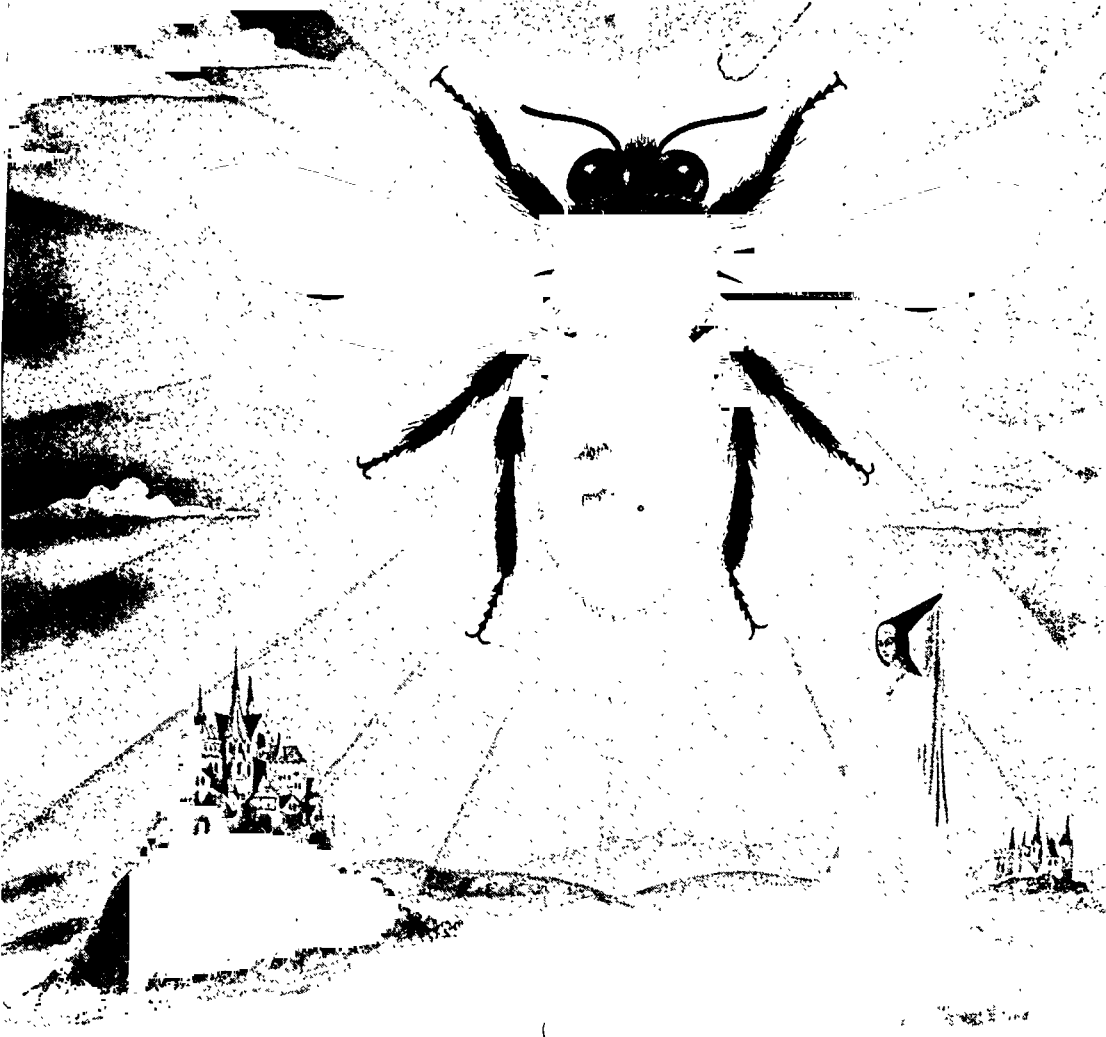
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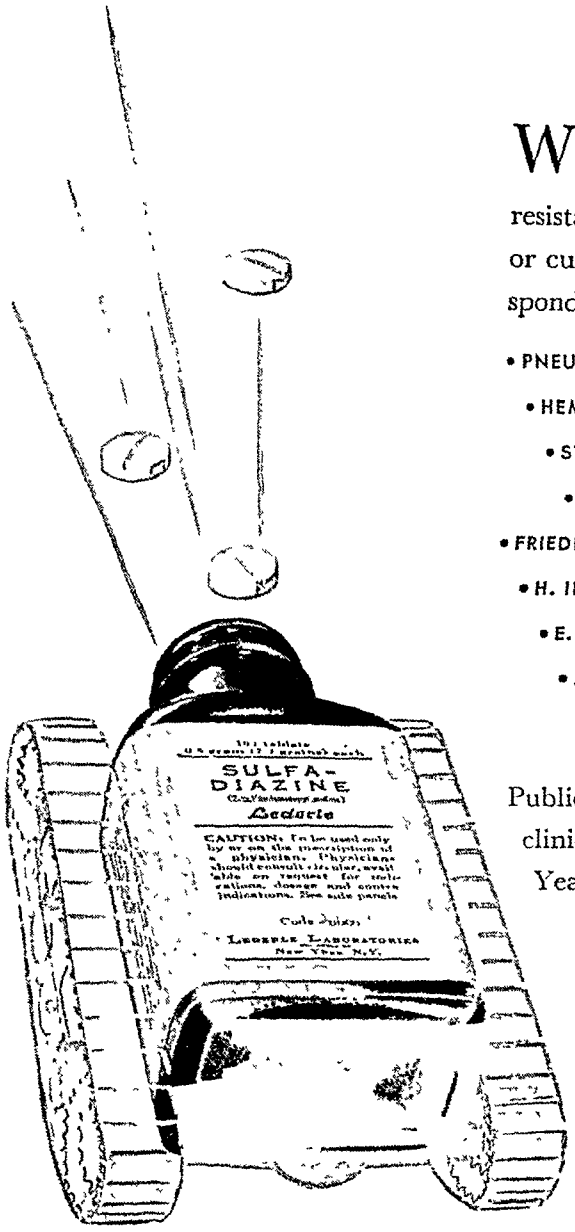
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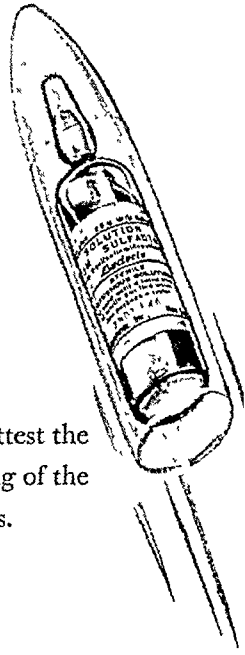
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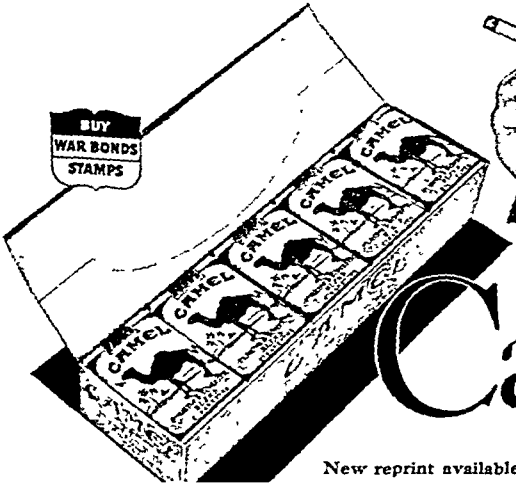
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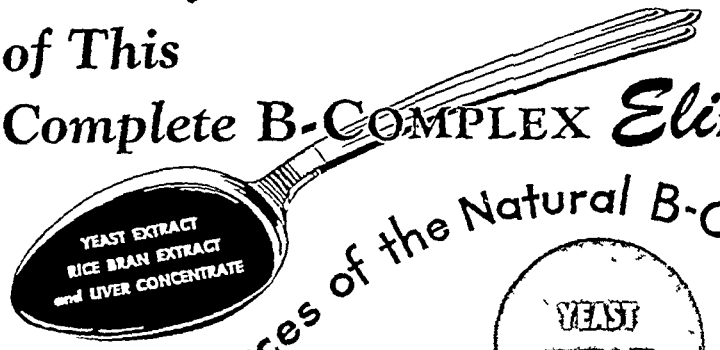


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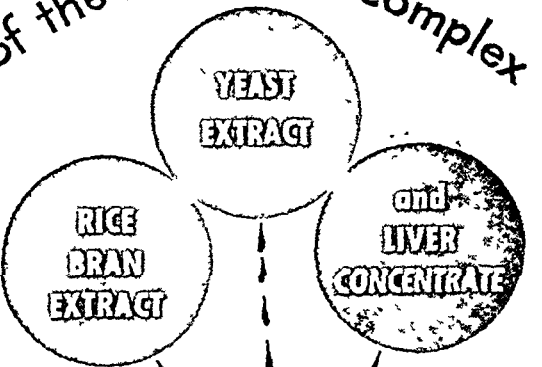
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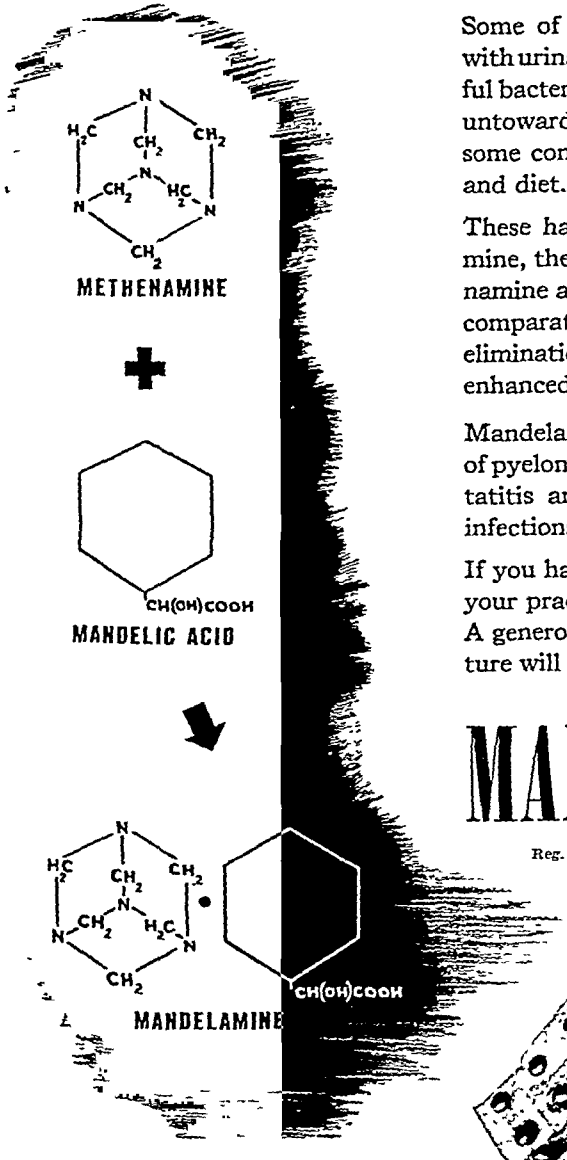
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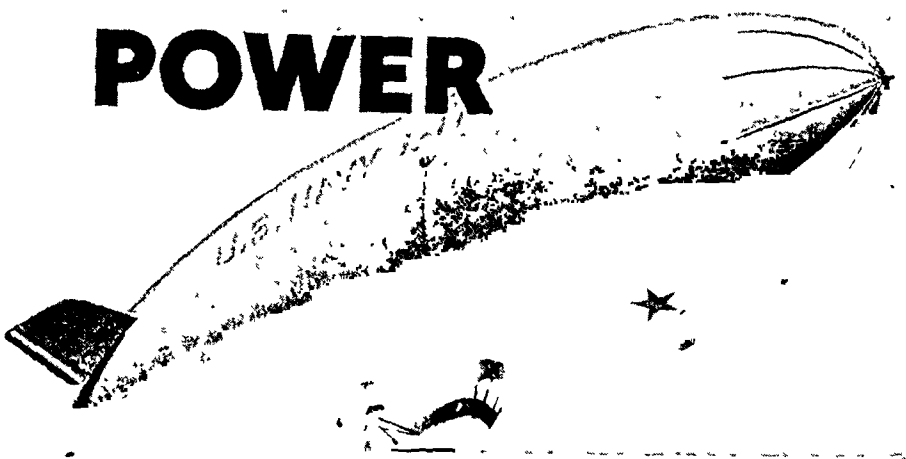
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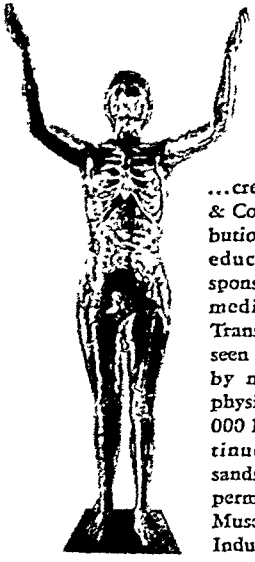
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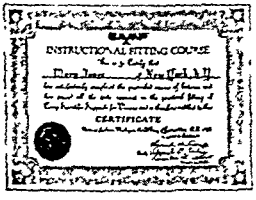


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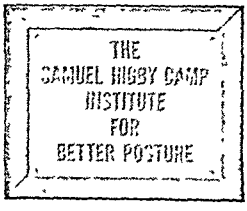


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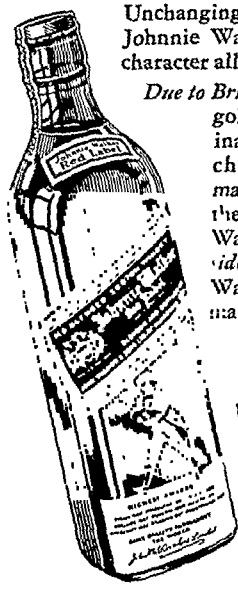
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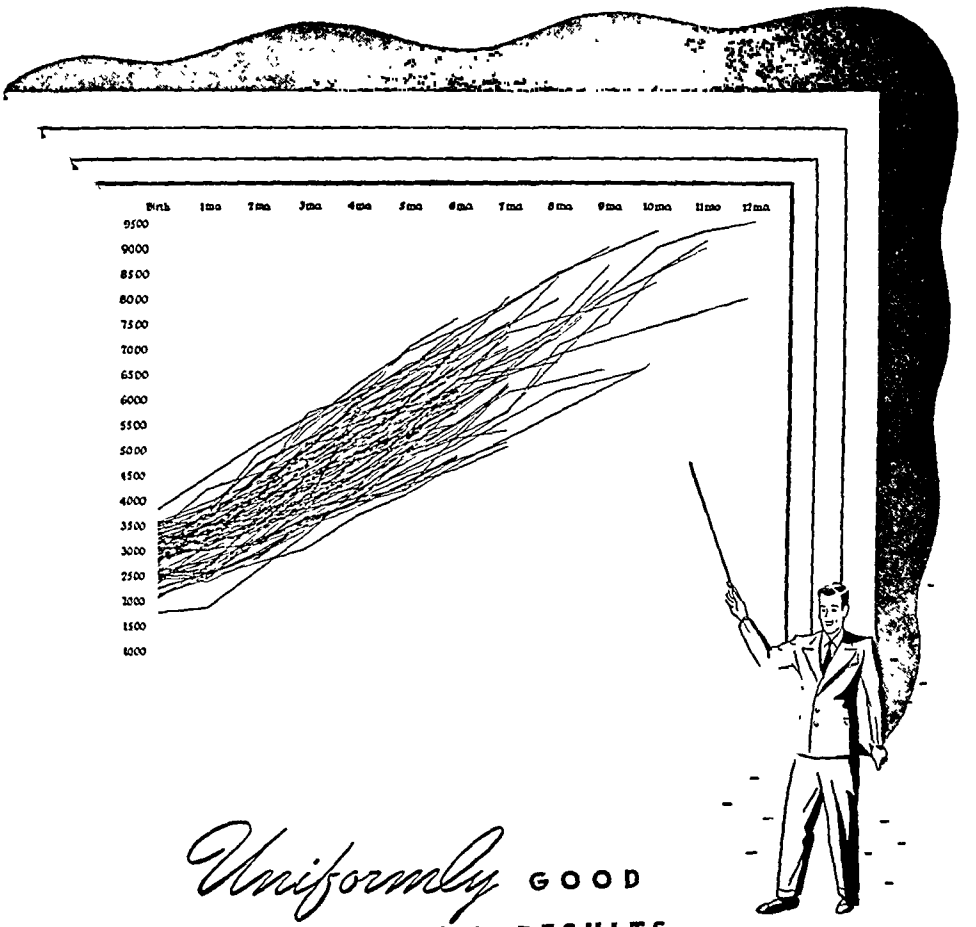
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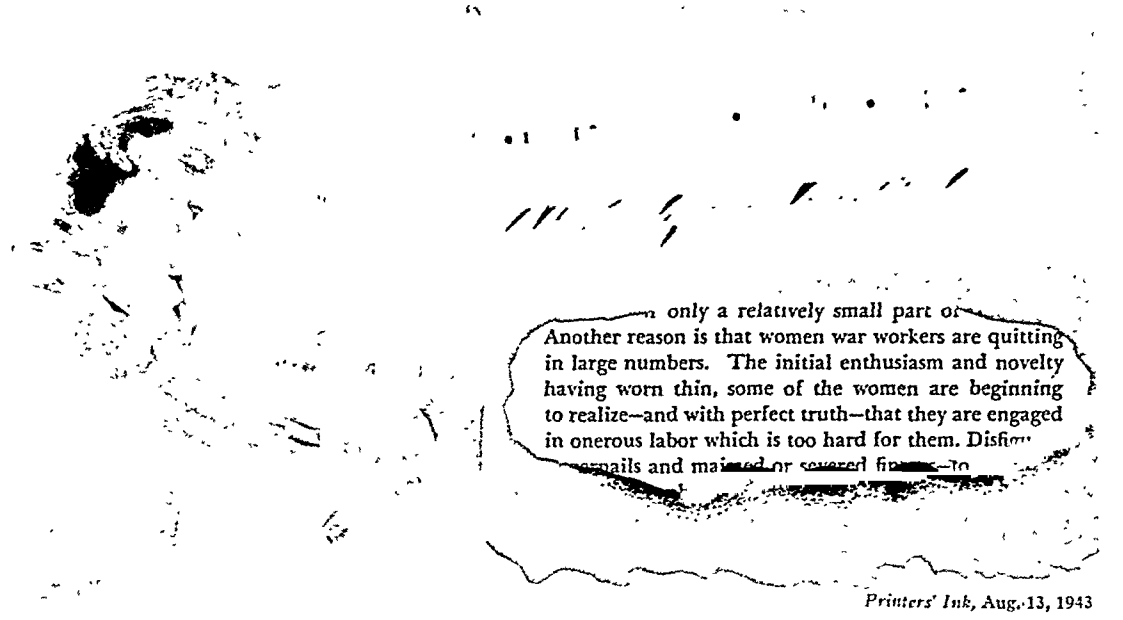
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Printers' Ink, Aug. 13, 1943

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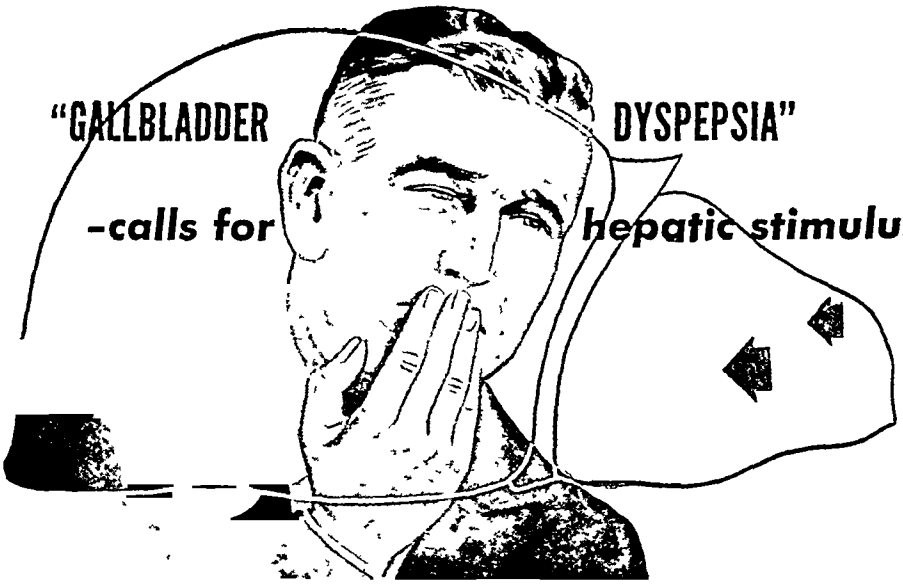
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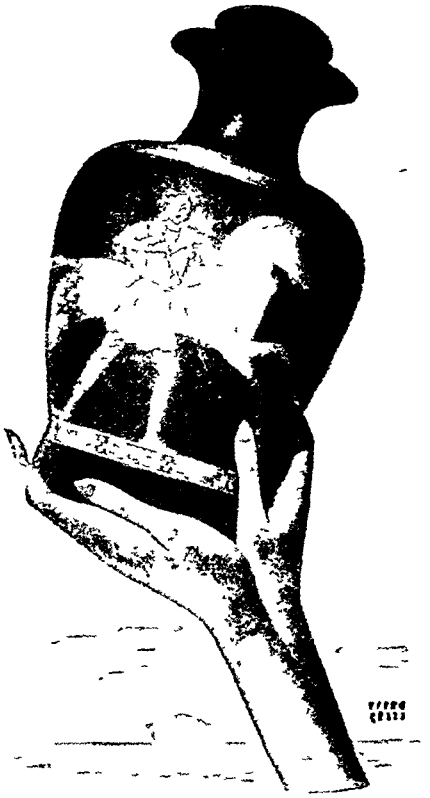
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'Dexin' reg U. S Patent Office

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Editorial

Why Another Bureaucracy?

The people of the United States will shortly be asked in Congress assembled to endorse the principle of government control of the institutions and practice of medicine.

If *S.1161* is passed, physicians will step out of the direction and control of the institutions and practice of medicine, and government will step in.

Government has stepped in in many places, before. For instance, "in Ohio there are 90,000 federal employees to 25,000 state; Massachusetts there are 129,000 federal employees to 21,000 state; Pennsylvania there are 215,000 federal employees to 44,500 state; Wyoming there are 6,200 federal employees to 1,100 state."

This bureaucracy is not elected by the people, but it is paid by the people.

It is not responsible to the people, but it is paid by the people.

It votes regularly but does not answer for its acts at the polls.

Yet it is extending its influence and power over the peoples' lives down to the last cross-roads village, hamlet, and farm.[1]

Why the great rush to increase this bureaucracy, to place the now free and liberal art and science of medicine under political control?

The federal government since July, 1939, is said to have increased its *new* employees almost 50 per cent every six months. "With more than 3,000,000 civilian employees—exclusive of Army and Navy—our federal government has now more persons on the taxpayers' payroll than *the combined total of all the employees of all the 48 states plus all the employees of all the country's county and municipal governments.*"[2] Of these, 55 per cent are not directly engaged in the war effort!

Now it is proposed in *S.1161* to create a huge new bureaucracy under the Surgeon General of the United States Public Health Service, who is not elected by the people, to direct and administer the public and private practice of medicine in the United States—at the taxpayers' expense, of course. Remember also that every employee has a vote as well as a weekly pay check. Remember also that the size of such an administrative bureaucracy will be enormous. For it must care for the medical needs of about 110,000,000 people. And somebody must pay for it! Why not you?

The physicians do not want to work for the government.

They want to work for the people, directly. They want to be paid by the people, directly.

They want to be responsible to the people, directly—as they have always been responsible to the people—directly.

They do not want to see our already enormously expanding and expensive bureaucracy enlarged by another enormously expensive bureaucracy set up to control and direct the medical care for 110,000,000 people. Why? Because they do not believe that it is necessary. Because they do not believe that it would improve or even maintain our standards of medical practice. Because they do not think that it would be actually in the public interest. Because they believe that it would actually increase,

not lower, the cost of medical care to the people in the long run. Because they believe that politics and medicine cannot be mixed without detriment to the quality of medical care. Because they believe, and warn, that inevitably in exchange for the establishment of an expensive political bureaucracy the people will receive a steadily depreciating quality of medical service, administered by political job-holders, and implemented by a necessarily retrograde medical profession.

If it could be honestly shown that government control of the profession would produce a better quality and a freer distribution of a better quality of medical service, the medical profession would endorse it and work for it. As Thomas A. McGoldrick, President of the Medical Society of the State of New York, said in part in his address to the Third District Branch[3] at Troy, New York: "If the *medical* plans proposed by laymen in the name of Social Security will do more for the people than the present method of distribution of services —if they will reduce the death rate and prevent sickness—if the discoveries in the art and science of medicine are better promoted and applied, and educational standards more rapidly elevated, then by all means let us have them. That doctors will be regimented, their hours of work and numbers of patients controlled, their remuneration fixed for the time by a political appointee, but fluctuating with general economic business conditions, their ambitions and competitive spirit destroyed—all these are matters of no moment compared to the physical welfare of the people.

"Doctors know, however, that by such methods as are proposed in this bill the quality of medical service will be greatly lowered. They know what has happened in other countries, in increase of the time lost in sickness, in absenteeism, in advancing death rates, in a lowered standard of health, in bureaucratic influence, and in the gradual diminution in the standing and responsibility of the profession as well as in the impairment of the quality of medical service.

"Let us see what we have *now* under our present methods and which we would exchange for the new compulsory plans for people and doctors. There are many authorities who have shown that the morbidity and mortality rates in this country are better than in any other comparable country on the globe. Last year in its annual statistical bulletin the Metropolitan Life Insurance Company published the death rate for specified causes per one hundred thousand policyholders for the year 1941. It also published the statistics for the twenty-fifth year before that time. These policyholders were of all ages, between 1 and 74. They were all in the group of weekly-paying industrial business.

"Inasmuch as the company's policyholders number many millions and are distributed widely in all sections of this country, they constitute a very representative cross section of the total wage-earning population. On the accuracy and value of these figures does the company pay millions of dollars.

"In 1917, the total number of deaths from all causes per 100,000 subscribers was 1264.5, and in 1941 it was 615.5:

Deaths

1917		1941
Typhoid, 13	Reduced to	0.04
Diphtheria, 21	Reduced to	0.7
Scarlet fever, 5.4	Reduced to	0.5
Influenza, 15	Reduced to	5.9
Pneumonia (all forms), 131.8	Reduced to	23.0
Tuberculosis, 202.8	Reduced to	40.9
Cardiovascular disease, 373.2	Reduced to	262.8
Appendicitis, 11.6	Reduced to	7.2
Puerperal conditions, 17.2	Reduced to	4.6

"Last week (September 6) the O.W.I. reported on the civilian health of the country. The report was based on data furnished by the U.S. Public Health Service, the War Manpower Commission, and the Federal Works Agency. Statistics of the U.S.P.H. Service show that the U.S. has the lowest death rate on record—10.3 per thousand. While the number of births rose two points (in 1941), the maternal mortality rate in 1942 decreased for the thirteenth consecutive year, being three deaths per thousand live babies.

"Infant mortality also has continued to drop.[4]

"'Influenza and typhoid,' the report continued, 'normal danger points during war, were, in 1942, below the peacetime average.'

"In passing, I would mention that the report disclosed that in one year 1,469 physicians had been relocated to regions

where the ratio of doctors to population was substandard. There are many factors which are explanatory of and responsible for the above results. During the last quarter of a century medicine has contributed new aids for the care of the sick, for the prevention of illness, and for the wider diffusion of all medical knowledge.

"In all departments, obstetrics, neuropsychiatry, and the others, progress rapidly continues. Many diseased parts of the body which so recently were forbidden to the surgeon now yield to his skill; the brain, the lungs, and the heart, the gastrointestinal tract have surrendered to his power, while his advancement in all branches of his art have been astounding. A very striking feature is the speed with which medical discoveries and developments are made available to doctors and patients. It was at one time thought that ten years must elapse before a real advancement was widely utilized. Through medical journals and medical meetings, through radio and press, such knowledge is now spread in months over the entire country. For the use of sulfonamides, insulin, and atabrin, even penicillin, demands were incessant before the manufacturing drug houses could produce sufficient amounts.

"These are steps in progressive science which we will surely lose in government-controlled care of the sick. Despite the support of such bills by labor organizations and by many who will gladly take something for nothing, the people, rightly informed of the benefits of present-day medicine and the dangers to them when its existence is jeopardized, will not approve. All the people are not materially blinded, as our millions of armed boys and their families attest.

"It is surprising how intelligently a rightly informed people will act. A nonmedical editor of one of our leading magazines has expressed his thought: 'What the public wants is American Medicine and at its best . . . . . Not a minimum of advice and prescription but the saving of life and health according to the excellent standards built after long and intelligent efforts to provide the utmost within human possibility. Government could never provide the ambition, the sacrifice, the complete devotion to one's fellow man as the ideal professional man has it. Nor could Government command that entire attention to the individual which is the mark of these professions.'[5]

"With our knowledge of what medicine has done and is doing for the people, individually and collectively, with our faith in that people when rightly informed, with courage to inform them and to protect them from these calamities that threaten, we may feel with confidence, that medicine, freed again of these many attacks, will proceed uninterruptedly on its real, its magnificent, purposes."

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[1] Cf.: Harry F. Byrd, U.S. Senator from Virginia. Readers Digest, July, 1943, pp. 36–38.
[2] *Loc. cit.*
[3] September 21, 1943.
[4] New York Times, September 7, 1943.
[5] America, August 21, 1943.

Communicating Hydrocephalus

The prognosis of hydrocephalus has, in the past, been justifiably pessimistic, and the outlook for the obstructive form of hydrocephalus is still unmitigatively grave. Recent innovations in the treatment of communicating hydrocephalus offer hope that this type may be amenable to relief or cure. The ameliorative methods of treatment employed differ in that one is operative[1] and the other is nonoperative.[2,3]

The obstructive form of hydrocephalus can easily be differentiated from the communicating type by the intraventricular injection of a dye into the lateral ventricle. If there is no obstruction, the dye will appear in a few minutes in the spinal fluid as evidenced by lumbar puncture.[4,5] There is, however, a definite and often much delayed excretion of the dye in the urine. The obstructive variety of hydrocephalus is amenable to treatment only if its causative mechanism is removable. Unfortunately this is seldom possible. If the hydrocephalus is demonstrated as the communicating variety, two methods are available for possible improvement or cure. In evaluating the efficacy of any treatment of hydrocephalus, it should be realized that spontaneous arrest may occur, but this occurs so infrequently that it cannot be hopefully awaited.

Scarff,[1] who revived interest in the surgical

treatment of hydrocephalus, attacked the source of the difficulty. Since in communicating hydrocephalus more spinal fluid is secreted than can be absorbed, the eradication of the chief source of secretion, the choroid plexus, may effect a cure. Extirpation of the choroid plexus by electrocautery in 20 cases yielded satisfactory results in half the cases, with a mortality of 15 per cent. Only about 20 per cent of the original series, however, developed a normal mentality. While these statistics are not too cheering, they give greater encouragement than previous figures.[4,5]

A nonoperative treatment for this disease has been reintroduced.[2] In 1933 Hiller[3] suggested the insertion of a waxed silk seton into the lumbar spinal canal through a lumbar needle as a relief for hydrocephalus. A technic has been developed whereby the excessive spinal fluid is allowed to drain slowly and continuously from the subarachnoid space into the subcutaneous tissue.[1] In a small series of 5 cases the results have been encouraging.[2] All patients were thoroughly investigated before treatment was begun and were subsequently studied for years. There has been no mortality in this series. In the event that a balance between secretion and drainage has not been achieved with one seton, others may be inserted later in numbers sufficient to equalize the two factors of secretion and drainage.

Our outlook upon a serious and previously hopeless disease now assumes a more optimistic tinge. Which of the two therapeutic procedures is indicated in a given case must be decided by careful individual studies. At present we may employ a medical or conservative method with some prospects of improving or arresting a most debilitating and discouraging ailment.

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[1] Scarff, S. E.: Am. J. Dis. Child. 63: 297 (Feb.) 1942.
[2] Peterman, M. G.: J. Pediat. 22: 690 (June) 1943.
[3] Hiller, R. I.: Am. J. Surg. 20: 119 (April) 1933.
[4] Ford, F.: Diseases of Nervous System in Infancy, Childhood, Adolescence, Springfield, Ill., Charles C. Thomas & Co., 1937, pp. 191–194.
[5] Holt, L., and McIntosh, R.: Holt's Diseases of Infancy and Childhood, New York, Appleton-Century Co., eleventh edition, 1941, p. 995.

Announcement

1944 ANNUAL MEETING

Medical Society of the State of New York

The 138th Annual Meeting of the Medical Society of the State of New York will be held Monday, May 8, to Thursday, May 11, 1944, inclusive, at Hotel Pennsylvania in New York City.

COUNCIL COMMITTEE ON CONVENTION

Symposium on Rheumatic Fever

A CLINICAL SYNDROME IN CHILDREN RESEMBLING RHEUMATIC FEVER

ALBERT D. KAISER, M.D., Rochester, New York

THE onset of childhood rheumatism is at times insidious and frequently difficult to recognize. It is therefore important to consider any clinical syndrome in children that has any similarity to the clinical manifestations known to exist in rheumatic fever. In the generally accepted definition of rheumatic fever the heart is probably always involved from the onset. The course of childhood rheumatism is characterized by recurrences of manifestations of rheumatic activity with intercurrent years of freedom from symptoms. There is apparently a direct relationship between the degree of cardiac damage and the number and severity of the recurrences. The frequency of cardiac involvement in rheumatic fever in both primary and recurrent attacks has emphasized the fact that some type of cardiac involvement is essential to a correct diagnosis of rheumatic fever in childhood.

There is, however, a clinical syndrome frequently noted in children that presents many of the protean manifestations peculiar to rheumatic disease in which cardiac involvement is either absent or not discernible. This syndrome follows much the same pattern of rheumatic infection in some ways, particularly in symptoms, signs, and epidemiology. It is noted in similar age groups, has the same seasonal course, and is liable to recurrences. The ultimate course is different and the disastrous end results are not encountered.

A typical case presenting this rheumatic-like syndrome presents the following picture. A child between 6 and 12 years of age has an attack of sore throat or an acute cold. The acute symptoms subside and an apparent recovery follows. However, in a few weeks it is observed by the parents or by the teacher that the child does not act well. There are complaints of pain in the knees or in the muscles of the thigh or leg. There is a decided loss of appetite especially in the morning. The usual enthusiasm for play is gone and there is definite evidence of fatigue. Observers are impressed by the pallor which was not noted before. The child becomes irritable and displays disciplinary problems both at home and in the school. Attempts to reprimand the child for failure to do the tasks previously done well seem only to intensify the complaints. The child complains of headache and vague pains and not infrequently pain in the epigastrium. An observing parent may discover that there is a slight elevation of temperature and eventually becomes concerned about the prolonged indisposition. There seems to be no appreciable improvement in the child's condition even after the administration of adequate vitamins and so-called tonics. The persistence of the vague complaints ultimately bring the child to the physician's office or to the clinic where an explanation of the child's unusual condition is sought.

The physician's examination reveals few positive findings, but a number of physical signs are found that substantiate the child's complaints. In spite of the pallor the blood examination shows only a slight anemia. The pulse rate is above normal and there is a degree or less of elevation in the temperature. The sore joints or muscles are well known to the child but no swelling or tenderness can be detected. Some evidence of infection is usually found either in the nares, throat, or glands of the neck but no more than one finds in many children without other complaints. Frequently a systolic murmur is heard or some irregularity is noted in the heart rhythm. The blood examination reveals a normal white count. The erythrocyte sedimentation test is usually normal. Other diagnostic tests are made, such as the intradermal tuberculin test, and the agglutination test for undulant fever, typhoid, and paratyphoid fever. All of these tests are negative. A fluoroscopic or x-ray examination of the heart reveals a normal size heart and the electrocardiographic tracing is pronounced normal. It is apparent after a careful history and physical examination that no definite diagnosis can be made though one recognizes a similarity to a mild rheumatic fever even in the absence of definite cardiac involvement. Further support is given to this assumption when the effect of rest is observed in this clinical syndrome. A few weeks of bed-rest usually is effective in restoring these children to good health. The muscle and joint pains are relieved by the administration of sodium salicylate. The physical complaints and the nervous manifestations are decidedly lessened and in-

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 6, 1943. Part of a Symposium on Rheumatic Fever.

treatment of hydrocephalus, attacked the source of the difficulty. Since in communicating hydrocephalus more spinal fluid is secreted than can be absorbed, the eradication of the chief source of secretion, the choroid plexus, may effect a cure. Extirpation of the choroid plexus by electrocautery in 20 cases yielded satisfactory results in half the cases, with a mortality of 15 per cent. Only about 20 per cent of the original series, however, developed a normal mentality. While these statistics are not too cheering, they give greater encouragement than previous figures.[4,5]

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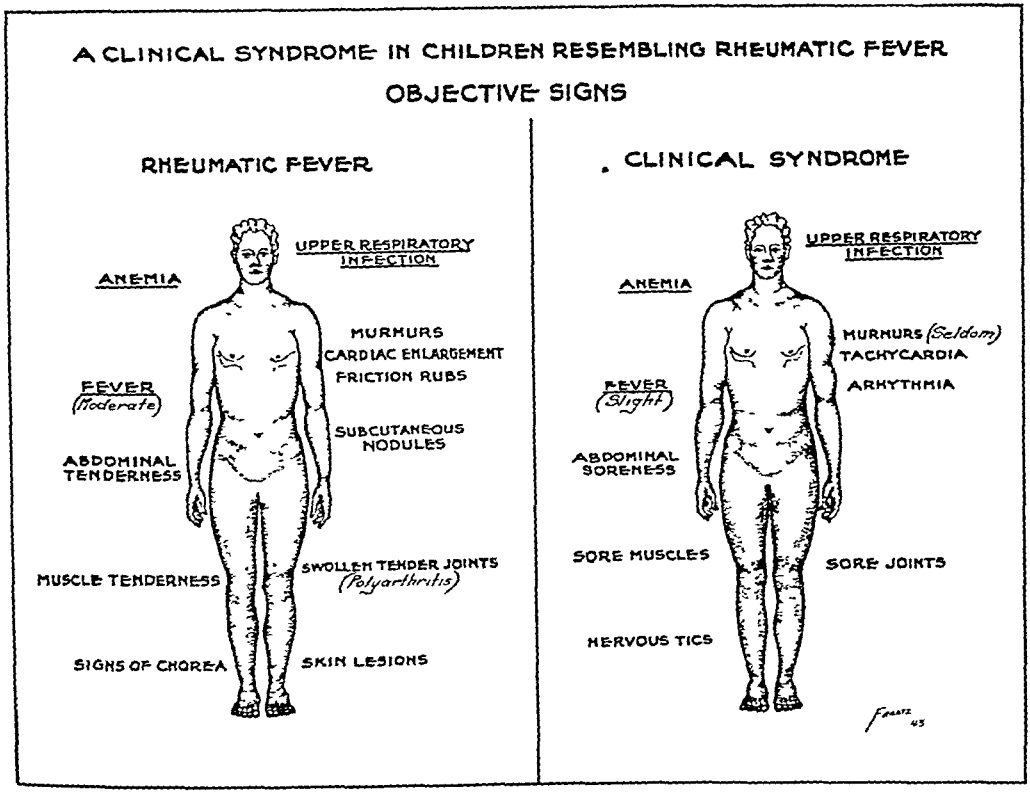


FIG. 2

was more or less lymphoid hyperplasia in the pharynx. Infected teeth were noted, in some children, with secondary infections in the gums. In a number of instances, evidence of paranasal sinus infection was present, but ear infections were not found in this group. No pulmonary signs were discovered in this group though pain in the chest was a frequent subjective complaint. The heart examination revealed a variety of unusual findings. The rate was usually somewhat increased. At times there was a marked acceleration in the rate. Arrhythmia was present in a number of the children, but on subsequent examination it disappeared. A systolic murmur at the apex, rarely heard elsewhere, was present in about one-third of the children. The murmur was not heard in most of these children after a prolonged rest in bed. There were no unusual blood pressure readings in these children (Fig. 2). Palpitation of the heart occurred occasionally, and sighing was not an uncommon observation. Exercise tolerance tests, though not constant, did show that the heart responded less favorably than similar tests in children who did not show this syndrome. In general, however, the heart revealed no clear evidence of abnormality and appeared to be perfectly normal in most children.

Laboratory examinations were made on some of the children manifesting this syndrome (Table 1). The erythrocyte count and hemoglobin estimation were either normal or slightly diminished. The leukocyte count was usually normal but occasionally slightly elevated. The erythrocyte sedimentation rate was rarely elevated. Throat cultures showed the usual variation in the bacterial flora with hemolytic streptococcus as the predominating organism in only a small number of children. Intradermal skin tests with the hemolytic streptococcus nucleoprotein showed nearly as high a percentage of positive reactions as did the children with definite rheumatic fever. Children of like ages with no evidence of rheumatic infection or the syndrome under discussion showed a much lower percentage of positive reactions. Where roentgenograms of the heart were made and electrocardiographic tracings were made, no abnormal findings were reported. No antistreptolysin determinations were made. It was quite evident that the usual laboratory aids for the diagnosis of rheumatic infection were not con-

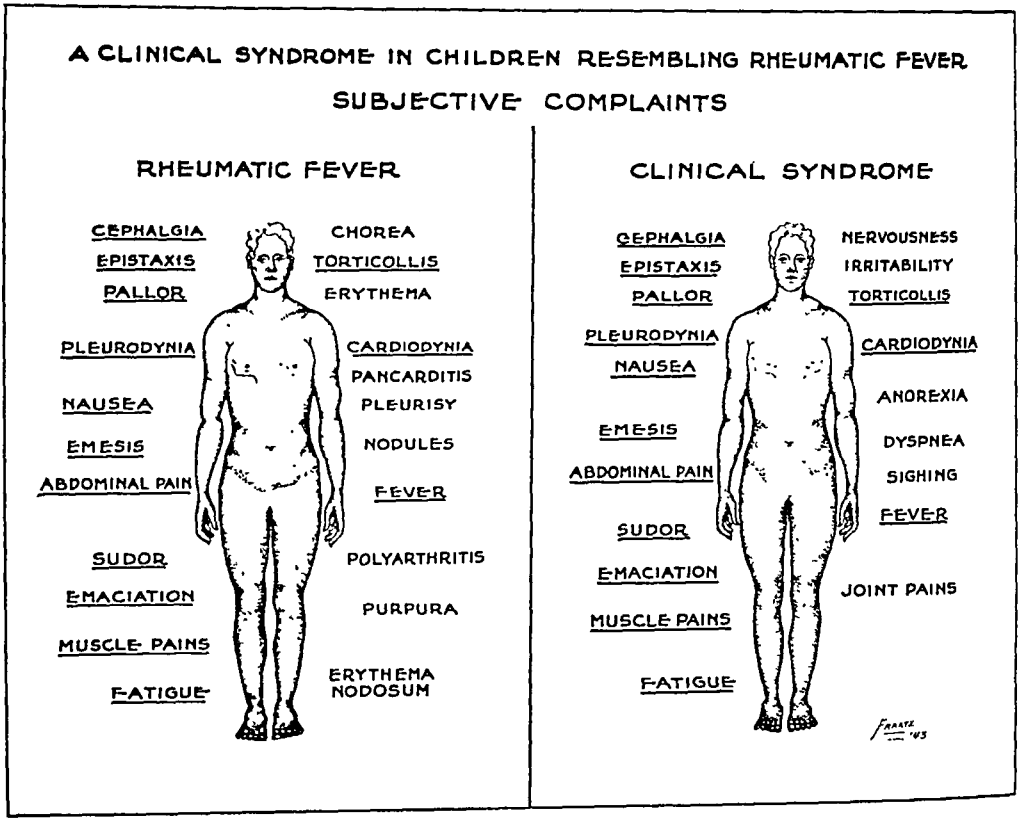


FIG. 1

variably the child is returned to normal activity. Where there is a tendency to a recurrence of these complaints, a repetition of the bed-rest acts effectively in improving the child's condition (Fig. 1).

Based upon an analysis of 200 children manifesting this clinical syndrome it was found that one encountered this clinical picture more frequently than the clearly defined syndrome termed rheumatic fever. Similarities to rheumatic fever in the clinical manifestations and in the epidemiology deserve discussion. In both instances the onset is usually insidious and follows some upper respiratory infection. The subjective complaints were less severe than in rheumatic fever although they follow the same pattern.

Muscular and joint pains are usual occurrences and abdominal pain was a symptom in about half of the children. Fatigue and pallor were as severe as in the rheumatic fever group. Anorexia, headache, epistaxis, and night sweats were common complaints in both syndromes. Nervous manifestations were more prominent than physical ailments in some of the children. Although not characteristic of Sydenham's chorea the hyperirritability of the child was not unlike that noted in a mild chorea. Recognizing the possibility that these subjective complaints might occur in various diseases they do, however, arouse suspicion of a rheumatic infection. Obviously they do not resemble the classical picture of rheumatic fever in which an acute polyarthritis ushers in the disease, but they do follow the pattern of the subacute type of rheumatic infection.

The physical signs recorded in the syndrome after a complete examination are not characteristic of any well-recognized infection. Muscle soreness may be elicited and manipulation of the joints at times causes some pain. Abdominal tenderness is usually absent in spite of the complaint of upper abdominal pain. There are usually no skin manifestations though erythematous rashes have been noted in several instances. No general glandular hypertrophy is found, but the cervical lymph nodes frequently are palpable.

In most of the children there was some evidence of chronic infection in the nose and in the pharynx. Either the tonsils were inflamed or, in the case of the tonsillectomized children, there

thought that some infectious agent in a susceptible individual causes the initial infection. This agent may be a hemolytic streptococcus or some virus or both. Released in a sensitized individual reinfection or release of the agent in some tissue may cause a recrudescence of the rheumatic process. In the case of rheumatic disease, the heart is always involved. It is conceivable that in the case of this rheumatic-like syndrome a similar process takes place. The fact that the heart is not involved and the clinical symptoms are relatively mild may be due to a less irritant agent or a more satisfactory immune response on the part of the individual.

No definite causative factor can be assigned to these rheumatic-like symptoms. The same may be said of rheumatic fever. It is assumed that recurrences of rheumatic symptoms follow exacerbations or reinfections with hemolytic streptococci. There is as much clinical evidence available to make a similar assertion for the recurrence of the rheumatic-like syndrome noted in children. The epidemiologic factors in the two groups show a great similarity which cannot be underestimated. The family case rate follows a parallel course in the two groups. There is, however, considerable difference in the severity of the symptoms in the two syndromes, which may account for the ultimate course the disease takes in the two groups. In the rheumatic children complete recovery occurs in less than 50 per cent, while in the special syndrome group complete recovery occurred in more than 90 per cent of the children. In those who failed to recover, typical rheumatic fever or chorea subsequently developed.

The query naturally arises, is this rheumatic-like syndrome an entity due to a variety of causes unrelated to rheumatic disease, or is it a phase of rheumatic infection with the same causative agent that falls short of developing the classical clinical entity known as rheumatic fever? A similar situation might be said to exist in the case of tuberculosis when a child is known to become infected with the tubercle bacillus giving rise to mild systemic symptoms but in whom no pulmonary involvement can be demonstrated.

It is conceivable, therefore, that a child may harbor the causative agent of rheumatic fever and fail to develop the recognized clinical picture of rheumatic disease. One might term such a disease complex as subclinical rheumatic fever.

Until more laboratory data is available in rheumatic infection, no positive statement can be made on the relationship of these two clinical syndromes. It should, however, be emphasized that the same precautions should be taken in the care of the child with the rheumatic-like syndrome that is recommended for the child who has been infected with the tubercle bacillus but in whom no clinical tuberculosis is discernible.

Conclusions

A clinical syndrome is described that has many of the characteristics of rheumatic fever in children.

It resembles rheumatic fever in the subjective symptoms and in the epidemiology but does not present the usual cardiac symptoms found in rheumatic fever.

Because of the unknown etiology and its resemblance in some respects to rheumatic fever it is possible that this syndrome represents a type of subclinical rheumatic fever.

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PREVENTION OF RHEUMATIC RECURRENCES

A Discussion of Various Measures Now Being Used

ANN G. KUTTNER, M.D., Irvington-on-Hudson, New York

RHEUMATIC fever is usually defined as a chronic generalized disease characterized by frequent recurrences or exacerbations. It is well known that in a certain proportion of rheumatic patients the course of the disease is insidious. However, in the majority of cases, serious cardiac damage is the result of repeated severe rheumatic attacks. The chief problem of the physician who has rheumatic patients under his care is to prevent recurrences of the disease.

At the present time, no specific therapy is available. However, various procedures are being used in an attempt to prevent or minimize rheumatic recurrences. These measures can be divided into two general categories: general measures designed to raise the resistance of rheumatic subjects and those based on the evidence that Group A hemolytic streptococci play a role in the cause of rheumatic fever.

I shall first discuss the general measures.

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 6, 1943. Part of a Symposium on Rheumatic Fever.
From Irvington House, Irvington-on-Hudson, New York.

TABLE 1.—A Clinical Syndrome in Children Resembling Rheumatic Fever

Laboratory Findings

Rheumatic Fever	Clinical Syndrome
Blood	Blood
Leukocyte count (usually above 9,000)	Leukocyte count (usually below 9,000)
Anemia (moderate to severe)	Anemia (slight to moderate)
Increased sedimentation rate (slight to marked)	Increased sedimentation rate (usually absent)
Throat cultures	Throat cultures
Variety of organisms	Variety of organisms
Increase of hemolytic str. in winter and spring	Increase of hemolytic str. in winter and spring
Sensitivity of skin	Sensitivity of skin
90% positive to hem. str. nucleoprotein skin test	75% positive to hem. str. nucleoprotein skin test
Electrocardiogram	Electrocardiogram
Frequently electrocardiographic abnormalities	usually no abnormalities
Radioscopic examination of heart	Radioscopic examination of heart
Usually early enlargement of left ventricle	Usually reveals no abnormalities

TABLE 2.—A Clinical Syndrome in Children Resembling Rheumatic Fever

Epidemiologic Factors

	Rheumatic Fever	Clinical Syndrome
Seasonal	Most prevalent March, April, May	Most prevalent January, February, March, April
Age	6–10 years	6–12 years
Sex	Equal in both sexes	Equal in both sexes
Racial	No special group	No special group
Urbanization	Higher percentage urban children	Higher percentage urban children
Poverty	High percentage in poorer homes	No difference in good and poor homes
Diet	No evidence of food deficiencies	No evidence of food deficiencies
Tonsils	No influence on incidence	No influence on incidence
Positive Parent Families	Definite evidence of underlying hereditarial predisposition	Definite evidence of underlying hereditarial predisposition
Recurrences	At least 50%	At least 50%
Outcome	High mortality, 10–15% within 10 years	No mortality
	Considerable permanent disability	Rarely permanent disability
	Relatively few complete recoveries	Nearly all complete recoveries

sistent with the findings in rheumatic fever. Epidemiologic studies of this syndrome bring out certain significant facts. There is a definite seasonal incidence of this symptom complex. The cases included in the study usually began in the early winter, increased during the winter, and reached a peak in the early spring, largely disappearing during the late spring and early summer. They did not appear in the families of low economic standards any more than in families with satisfactory housing and social conditions. This may be due to the fact that they have been observed in an office practice which represents a cross section of families in an urban community. There is a definite age susceptibility beginning at about 6 years of age, reaching the peak at 9 years, and becoming rather uncommon after 12 years of age. Boys and girls were equally involved. There was a definite familial tendency for the occurrence of this syndrome. More than one child in a family frequently had this complaint. In many instances, definite rheumatic fever or chorea occurred in other children of the family or there was a history of rheumatic infection in one of the parents. The secondary attack rate was high. At least 50 per cent of the children observed had two or more of these attacks. The recurrent attacks were similar to the primary attack or else showed more nervous manifestations. In a few instances, the children with this syndrome experienced an attack of rheumatic fever in a recurrent attack. Practically all of the children who had recurrent attacks developed no further trouble after a period of five years from the initial attack. It is evident that there is a striking parallelism between the epidemiology of this syndrome and that of rheumatic infection (Table 2).

The diagnosis of this rheumatic-like syndrome is made when all other possible diagnoses have been excluded. Fortunately, with laboratory aid such diseases as tuberculosis, undulant fever, anemia, intestinal parasites, and nephritis can be excluded. A nutritional survey must be made to eliminate the possibility of some vitamin or mineral deficiency. The management of these children resolved itself into rest therapy. All of them were given complete bed-rest for two or more weeks, depending upon their response to rest, and then returned to school on a modified program for several weeks more until they appeared free from their complaints. Not all of them were completely relieved in such a short time, but generally a striking improvement resulted. Where foci of infection were suspected, proper treatment was instituted when it seemed advisable to treat the focus. The only drugs employed were sodium salicylate to relieve pain if it existed or phenobarbital where a sedative seemed indicated. In a number of children in whom recurrences occurred, sulfanilamide was given prophylactically as in the case of rheumatic children.

Invariably the children recovered from their initial and recurrent attacks and ultimately in those observed for a period of years there was absolute freedom from this syndrome. One is impressed with the similarity in behavior of these children to those with mild rheumatic recurrences except that the end results can be safely predicted in this syndrome while in rheumatic infection, one is uncertain as to the outcome.

Comment

Assuming that this syndrome in children has certain clinical manifestations noted in rheumatic infection, one can speculate on a causative hypothesis. In the case of rheumatic fever, it is

streptococcal pharyngitis by small daily doses of sulfanilamide and that rheumatic patients who escape this type of upper respiratory infection also escape rheumatic manifestations.

Irvington House Results.—At Irvington House we have been studying the effect of upper respiratory infections on rheumatic children for the past five years.

Type of Institution.—Each year 108 children were selected during the summer and fall months. With a few exceptions, no new children were admitted from December 1 of each winter until the end of May. The children went to school in the same building and had no contact with other children. The group consisted of 66 girls and 42 boys, varying in age from 6 to 15 years. Throat cultures to determine the presence of Group A hemolytic streptococci were taken routinely once a week on every child. Additional cultures were taken on two successive days on children who developed symptoms of any kind. Antistreptolysin O titers were determined routinely every three to six weeks.

During the first three years, 1937 to 1940, three different types of upper respiratory infections were observed: the "common cold," epidemic influenza B, and streptococcal pharyngitis. The children were put to bed as soon as they developed symptoms of any kind. Most of the patients with colds were afebrile, and with rest in bed the symptoms subsided promptly in one or two days. The influenza outbreak was explosive; 50 of the 108 children contracted the disease in the period of one month. The disease was characterized by an abrupt onset of fever, accompanied by leukopenia. The virus of influenza B was isolated from one of the cases by Dr. Thomas Francis, Jr.,[9] and specific neutralizing antibodies were demonstrated in the sera of a large proportion of the children after recovery.

No rheumatic sequelae were detected following the "common cold" or influenza B.

During the same period, three outbreaks of streptococcal pharyngitis were observed. During the winter of 1937–1938, 12 of the 108 children developed sore throats due to a single type of streptococcus, provisional type 32. Following a latent period, 6 of the 12 children showed rheumatic manifestations.

During the following winter, 1938–1939, 32 of the 108 children developed pharyngitis due to a single type of Group A hemolytic streptococcus Type 4. Although this outbreak of streptococcal pharyngitis was more severe than that observed during the previous winter, not a single child developed rheumatic sequelae.

During the winter of 1939–1940, another outbreak of streptococcal pharyngitis occurred in the institution; 40 of the 108 children developed pharyngitis due to streptococcus Type 27. Following a latent period, 8 of these 40 children developed rheumatic manifestations.

In summarizing the findings of the first three years, the incidence of rheumatic recurrences among the children receiving sanatorium care was low—namely, 14 reactivations among 248 patients. Although all 14 of these rheumatic recurrences had followed in the wake of streptococcal upper respiratory infections, it was thought, in view of the small number, that the apparent relationship to streptococcal pharyngitis might be accidental.

To test this possibility, it was necessary to prevent streptococcal pharyngitis by some means which had no effect on the rheumatic infection itself. Most observers agree that not only is sulfanilamide of no value in the treatment of acute rheumatic fever but that it actually increases the severity of the rheumatic symptoms. On the other hand, it had been shown by Coburn and Moore, and Thomas and her coworkers that streptococcal upper respiratory infections could be prevented by the administration of small daily prophylactic doses of sulfanilamide. It was thought that if the apparent relationship of streptococci and rheumatic sequelae was a coincidence, the prevention of streptococcal pharyngitis in rheumatic subjects should not inhibit the development of rheumatic recurrences.

Prophylactic Sulfanilamide at Irvington House

During the winters of 1940–1941 and 1941–1942, the 108 children at Irvington House were divided into two groups matched as closely as possible in regard to age, sex, number of previous rheumatic attacks, and cardiac findings. During the winter of 1940–1941, the majority of the patients had cases of possible and potential heart disease. Only 24, or 22 per cent, of the 108 children had organic heart disease. During the following winter, the proportion of children with definite cardiac lesions was increased to 49 per cent.

Dosage.—Beginning in October, 1940, and continuing until June, 1941, half the children were given small daily doses of sulfanilamide so as to maintain an average blood level of 2 mg. per cent. In most instances, children weighing 75 pounds or less received 15 grains in three divided doses and children weighing more than 75 pounds received 20 to 30 grains. The other 54 children served as controls.

Beginning in October, 1941, and continuing until June, 1942, half the children were again given sulfanilamide. The dosage was decreased slightly so as to maintain an average level of 1.5 mg. per cent. All bloods for the determination

General Measures

Convalescent or Sanatorium Care.—The purpose of convalescent care for rheumatic patients is twofold. The first is to provide bed-rest for children recovering from acute attacks of rheumatic fever, since clinical and laboratory signs of rheumatic activity often persist for weeks and months, and most general hospitals are unable to keep patients for such long periods of time. The second is to try to increase the resistance of rheumatic patients by placing them in a favorable environment where they will receive adequate food and rest during intervals between attacks when the rheumatic process appears to be quiescent. Some sanatoria take both types of cases, but the majority admit mainly the latter type.

Several reports have been published on the value of convalescent care for children in the inactive stage of the disease. In most instances, however, either a comparable control group of children who remained in their own environment has not been available or the period of observation has not been sufficiently long. From the data available at the present time, it is impossible to state whether or not convalescent care permanently influences the course of the disease.

Vitamin Therapy.—In view of the well-known relation between poverty and rheumatic fever, it has long been suspected that dietary deficiencies might play a role in the cause of this disease. Attempts have been made to relate susceptibility to rheumatic fever to lack of various vitamins, particularly vitamin C, or to a deficient protein intake. So far the results have been negative. Most observers agree that neither the susceptibility to upper respiratory infections nor the incidence or the course of rheumatic recurrences were influenced by these dietary factors.

Climate.—Because of the lower incidence of rheumatic fever and of streptococcal upper respiratory infections in subtropical climates, it seemed possible that rheumatic patients might be benefited by transportation to the South. This procedure has been tried with only a small number of patients for one or two winters. The results, however, have not been impressive. Some patients developed rheumatic recurrences while in the South, and others showed no decrease in susceptibility to rheumatic fever on their return.

Prophylactic Measures Related to Streptococci

Since the original observation of Haig-Brown in 1886 on the relationship of streptococcal pharyngitis to rheumatic fever, many observers have been of the opinion that streptococci play an important part in causing this disease. Certain therapeutic procedures are based on this assumption.

Desensitization.—The possibility that the symptoms of rheumatic fever might be caused by sensitization to streptococci or their products has been considered by several observers. Wilson[1] and her coworkers and Wilson and Swift[2] injected streptococcal vaccines intravenously to see if desensitization of rheumatic patients tended to lower the incidence or severity of rheumatic recurrences. No evidence was obtained that the clinical course of the disease was altered by this procedure.

Wasson[3] and Wasson and Brown[4] have reported beneficial results from repeated subcutaneous injections of increasing amounts of streptococcus toxin. A total of 38 injections are given over a two-year period. These authors have used this form of treatment for the past eight years and are of the opinion that the number of rheumatic relapses is reduced in treated as compared to untreated patients. The large number of injections required, however, is a serious drawback. The investigators are at present trying to develop a method of concentrating the streptococcus toxin so that only a few injections will be necessary.

Salicylate Prophylaxis.—The value of salicylates in rheumatic fever has been a controversial subject for many years. Most observers agree that the action of these drugs is purely symptomatic. On the other hand, two such eminent authorities on rheumatic fever as Coombs and Schlesinger believe that salicylate therapy may reduce the incidence and severity of cardiac lesions.

Schlesinger[5] advises the prophylactic use of aspirin in rheumatic subjects for four weeks following upper respiratory infections. He is of the opinion that this treatment prevents the development of rheumatic sequelae.

Coburn and Moore,[6] in this country, have conducted similar studies and have reported favorable results.

With this type of salicylate therapy, the possibility of masking rheumatic symptoms is always present. Unless frequent x-rays and electrocardiograms are taken during the course of treatment, it is difficult to be sure that cardiac involvement has not occurred.

Prevention of Rheumatic Recurrences by the Prophylactic Administration of Sulfanilamide

In 1939 reports on the value of the prophylactic administration of sulfanilamide in preventing rheumatic recurrences were published by Thomas[7] and her coworkers and by Coburn and Moore.[8] These authors agreed that it is possible to prevent

TABLE 3.—Toxic Reactions to Sulfanilamide

Case No.	Name	Sex	Age (Years)	Weight (Pounds)	Daily Dose (Grams)	Day	Symptoms	Remarks
1	S. S.	M	12	77	2	5	Fever	Restarted, fever and vomiting
2	H. C.	F	11	66	1	11	Erythema	WBC normal
3	F. S.	F	8	51	1	12	Erythema	WBC normal
4	G. R.	F	11	70	1	15	Urticaria	WBC 20,000
5	R. A.	F	15	104	2	13	Fever	Restarted, rash, WBC 11,000
6	P. P.	F	8	55	1	28	Leukopenia	Restarted, leukopenia
7	M. M.	F	11	73	1	22	Leukopenia	Restarted, leukopenia
8	D. B.	M	11	89	2	6	Fever	Restarted, fever and vomiting
9	J. C.	F	14	110	2	35	Urticaria	WBC 10,500
10	H. M.	F	13	106	2	5	Fever, leukocytosis	Restarted, hyperpyrexia, leukocytosis

cent, instead of the usual 1.5 mgm. per cent. Following a latent period, this patient developed mild rheumatic manifestations.

Streptococcal Carriers in the Sulfanilamide Group.—Four children who received sulfanilamide and whose levels were maintained at an average of 1.5 mgm. per cent became carriers of streptococcus Type 36 without developing symptoms of any kind.

Results, 1941–1942.—As shown in Table 2, the contrasts between the incidence of streptococcal pharyngitis in the control and sulfanilamide groups is again clearcut—namely, 18 to 1. The incidence of rheumatic recurrences in the two groups is 10 to 1.

Toxic Reactions.—During the first year, 10 of the 54 children who were started on sulfanilamide developed toxic reactions of sufficient severity to necessitate stopping the drug. Other children were substituted for those unable to tolerate sulfanilamide.

The toxic reactions as shown in Table 3 were: fever, nausea and vomiting, skin manifestations, and leukopenia. Four children developed fever, in two accompanied by nausea and vomiting. The drug was omitted for a period of two weeks to one month and then readministered. Three of these 4 children again developed fever after taking the drug for a shorter period of time and one developed an urticarial rash. Four children developed skin manifestations. In two the rash was erythematous and the white blood count was normal; in the other two, the rash was urticarial accompanied by leukocytosis. In view of the marked reactions in these children, the drug was not restarted. Two other children developed leukopenia which recurred when the drug was given a second time.

During the winter of 1941–1942, 5 of the 54 children could not tolerate the drug. The symptoms were similar to those observed during the previous year: 4 children developed fever ranging from 101.2 to 103 F.—in one instance accompanied by abdominal pain and in another by urticaria. One child developed leukopenia, her white blood count dropping from 6,700 to 2,800 cells with a decrease in polymorphonuclears from 57 to 33 per cent (Table 4).

Four of these children received sulfadiazine. One boy developed symptoms identical with those caused by sulfanilamide—namely, fever and abdominal pain. The other three tolerated sulfadiazine well.

During 1940–1941, there was no significant difference in weight gain between the children who received sulfanilamide and those who served as controls. Twenty-three children, who received the drug for a second winter, did well. With the dosage used, either no decreases or only slight decreases in the hemoglobin were observed. Some children who received sulfanilamide looked pale, but cyanosis was usually not marked. In the majority of cases, it was impossible to tell from the appearance of the patient whether or not he was receiving the drug.

Importance of Streptococcal Upper Respiratory Infections in Rheumatic Subjects.—To summarize the findings of the past five years, we have observed a total of 38 clearcut rheumatic recurrences and 9 questionable rheumatic recurrences. All 47 of these rheumatic recrudescences developed as sequelae to streptococcal upper respiratory infections. In the absence of streptococcal pharyngitis during the five-year period, no rheumatic recurrences were observed among 377 rheumatic patients under close observation, in

TABLE 4.—Toxic Reactions to Sulfanilamide, October 28, 1941–February 1, 1942

Case No.	Name	Sex	Age (Years)	Weight (Pounds)	Daily Dose (Grains)	Level (Mg. %)	Day	Symptoms
1	S. C.	M	13	105	20	1.5	9	Fever to 102.4 F., WBC normal
2	V. C.	M	12	107	20	1.8	8	Fever to 101.8 F. WBC normal
3	S. T.	M	14	111	20	1.7	10	Fever to 101.2 F., abdominal pain, WBC normal
4	A. S.	F	8	54	15	1.75	21	Leukopenia, WBC 2,800, P 33
5	F. A.	F	13	89	20	2.2	11	Urticaria after 11 days, fever to 103 F. after 13 days, WBC 13,000

TABLE 1.—Seasonal Distribution of Streptococcus Type 15 Upper Respiratory Infections and Incidence of Rheumatic Occurrences, 1940–1941

	Control Group (54 Children)			Sulfanilamide Group (54 Children)		
Seasonal Distribution	No. of Cases	Definite Rheumatic Recurrences	Questionable Rheumatic Recurrences	No. of Cases	Definite Rheumatic Recurrences	Questionable Rheumatic Recurrences
October	3	0	1			
November	8	3	1			
December	12	5	4	1	0	0
January	7	6	0			
February	0	0	0			
Total	30	14	6	1	0	0

TABLE 2.—Seasonal Distribution of Streptococcus Type B35 Upper Respiratory Infections and Incidence of Rheumatic Recurrences

	Control Group (54 Children)			Sulfanilamide Group (54 Children)		
Seasonal Distribution	No. of Cases	Definite Rheumatic Recurrences	Questionable Rheumatic Recurrences	No. of Cases	Definite Rheumatic Recurrences	Questionable Rheumatic Recurrences
October	7	4	0	0	0	0
November	9	4	1	1	1	0
December	1	1	0	0	0	0
January	1	0	0	0	0	0
Total	18	9	1	1	1	0

of sulfanilamide levels were taken in the morning before the 8 A.M. dose.

Streptococcal Upper Respiratory Infections in the Control Group, 1940–1941.—On October 22, 1940, a routine culture of one of the children in the control group showed large numbers of Group A hemolytic streptococci Type 15. This child had no complaints or symptoms and showed no rise in antistreptolysin O titer. This type of streptococcus had not been present in the community before and the source of this organism was not determined.

From October, 1940, until the end of January, 1941, 30 of the 54 children in the control group developed pharyngitis due to streptococcus Type 15.

Incidence of Rheumatic Recurrences in the Control Group, 1940–1941.—Following a latent period varying in length from three to twenty-one days, 14 of these 30 children developed definite rheumatic recurrences. Three of these 14 children had originally been in the sulfanilamide group but were unable to tolerate the drug. They contracted the Type 15 streptococcus infection four days, five weeks, and two months, respectively, following the withdrawal of sulfanilamide.

Six additional children (of these 30) developed questionable rheumatic recurrences following the streptococcus Type 15 pharyngitis. One of these children had been in the sulfanilamide group originally but could not tolerate the drug. He contracted the Type 15 upper respiratory infection two weeks after the withdrawal of the sulfanilamide.

Streptococcal Upper Respiratory Infections in the Sulfanilamide Group.—Only one child in the sulfanilamide group contracted pharyngitis due to streptococcus Type 15. She complained of sore throat and had a temperature ranging from 101.2 to 100 F. for two days. Her white blood count was elevated. The same dose of sulfanilamide was continued and she recovered promptly. Her erythrocyte sedimentation rate remained normal and no rheumatic sequelae developed. Her level was 2 mg. per cent at the time of her infection.

Streptococcal Carriers in the Sulfanilamide Group.—Ten children who received the drug became carriers of Type 15 without showing symptoms of any kind. It is of interest that none of these children developed pharyngitis when sulfanilamide was discontinued on June 1, 1941, although 6 of the 10 patients were still carrying streptococcus Type 15 at this time.

Results, 1940–1941.—The contrast as shown in Table I between the incidence of streptococcal pharyngitis among the children in the control group and those receiving sulfanilamide is striking—30 to 1. Not a single child who received the drug developed rheumatic manifestations, whereas a total of 14 of the 30 children, or nearly half, in the control group who had streptococcus Type 15 upper respiratory infections, showed definite signs of rheumatic activity.

Second Winter of Sulfanilamide Prophylaxis.—Beginning in October, 1941, and continuing until the middle of January, 18 of the 50 children in the control group developed pharyngitis due to a single type of Group A hemolytic streptococcus, designated as Type 36.

Incidence of Rheumatic Recurrences in the Control Group, 1941–1942.—Following a latent period varying from ten to eighteen days, 9 of these 18 children developed definite rheumatic recurrences and one a questionable rheumatic recurrence. (Of these 10 children with rheumatic manifestations, 6 had organic heart disease and 4 were cases of possible and potential heart disease.) The rheumatic recurrences in 4 of these 10 children were severe. (Of these 4, 3 had organic heart disease and one did not.)

Streptococcal Upper Respiratory Infections in the Sulfanilamide Group, 1941–1942.—Only one child in the sulfanilamide group developed pharyngitis due to streptococcus Type 36. The sulfanilamide level was slightly low at the time this boy contracted the infection, 0.95 mg. per

In considering any therapeutic measure, the dangers inherent in the treatment must be weighed against the seriousness of the disease. The mortality rate of rheumatic heart disease in this country is estimated to be 40,000 deaths a year with an average age at death of 30 years.

Although there are some indications that the severity of rheumatic fever shows a tendency to decrease in this country, the prognosis of patients who show clinical evidence of carditis early in the course of the disease is still extremely grave.

In any given child, however mild the first rheumatic manifestations may be, it is impossible to predict the subsequent course of the disease. On the basis of the information that we now have on hand, our best chance of reducing the mortality rate due to rheumatic heart disease and preventing chronic invalidism is to prevent rheumatic recurrences, not for one or two years, but for at least five years. How can this best be accomplished?

Until the cause of rheumatic fever is fully understood or until some means of stimulating a comprehensive immunity to a large number of the numerous types of Group A hemolytic streptococci is developed, it seems unlikely that an entirely satisfactory method of preventing rheumatic recurrences will be available. At the present time, the data of Thomas and her coworkers, of Coburn and Moore, of Hansen[13] and his coworkers, and of Chandler and Taussig[14] as well as our own, suggest that the prophylactic administration of sulfanilamide, in spite of its hazards and drawbacks, offers a possible approach to this problem.

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POTENTIALITIES IN THE SCHOOL FOR RHEUMATIC FEVER CONTROL

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NEARLY every student of the public health aspects of rheumatic fever has appreciated the strategic position held by the school in regard to this disease. Yet, most of our school health programs today play an ineffectual and unimportant role in the control of rheumatic fever. In England some years ago, a rheumatic fever control program was developed in which the school plays an essential part in case-finding, supervision, follow-up, and vocational rehabilitation.[1–4] But no program has so far been developed in the United States which approaches this comprehensive scheme of the London County Council. In this country efforts to use the strategic place of the school have to date been limited to fact-finding. For example, surveys have shown the incidence of heart disease to be as high in some communities as 4 per cent of the school population.[5] Studies have revealed that in the school health program, attention is focused on procedures to limit the activities of children with heart disease.[6] Valuable as these observations are, they have not had much influence on school health procedures, for there appears to be little or no awareness among those in daily contact with school children of the manifestations suggestive of, or indicative of, rheumatic fever; little or no exchange of information between treatment agencies and the school; little or no assistance given by the school in the follow-up of potential or possible cases of heart disease. Thus, if the school is to realize its potentialities in the control of rheumatic fever, these concepts must be introduced into school health procedures.

Can the pediatrician in his own community help with this modification of school health procedures? He can, but he will find, perhaps not in his State but elsewhere, that some officials are skeptical of the importance of rheumatic fever. For example, in a State where the mortality rate among children and young people is one of the highest in the country, one health department official considered that the publicity given the disease was unwarranted because the rate rep-

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TABLE 5.—Complaints, Clinical and Laboratory Findings in 38 Cases of Streptococcal Upper Respiratory Infections Followed by Rheumatic Recurrences, 1937–1942

No. of Cases	Complaints	Throat		Maximum Rectal Temperature	WBC	Rise in Antistreptolysin	
		Normal	Abnormal			Positive	Negative 0
5	None	5	....	Normal	No change	5	0
4	"Scratchy" throat	4	....	Normal	No change	1	3
1	Coryza	..	(Postnasal drip)	Normal	No change	1	0
2	"Sore" throat	1	1	Normal	Elevated	2	0
4	"Sore" throat	4	....	Less than 101 F.	Elevated	4	0
3	Malaise	3	....	Less than 101 F.	Elevated	2	1
19	"Sore" throat or malaise	14	5	101–105 F.	Elevated	19	0
Total 38		31	7			34	4

whom the rheumatic process had been quiescent for a period of six months or more.

On the other hand, a total of 134 cases of streptococcal pharyngitis were observed. Of these, 28 per cent showed definite rheumatic sequelae.

In our opinion, therefore, the most important measure in any program for the prophylactic treatment of rheumatic individuals is the prevention of streptococcal upper respiratory infections due to Group A hemolytic streptococci. As yet, we do not understand how the streptococcus causes a reactivation of the rheumatic process or why one streptococcal outbreak is followed by rheumatic sequelae and another is not. Our results agree with those of Coburn and Moore, and Thomas and her coworkers that it is possible to prevent streptococcal pharyngitis in rheumatic subjects by the prophylactic administration of sulfanilamide and thereby prevent rheumatic recurrences.

Furthermore, by the use of sulfanilamide, further evidence of the importance of Group A hemolytic streptococci as a factor in the cause of rheumatic fever has been accumulated.

Findings for Streptococcal Upper Respiratory Infections Preceding Rheumatic Recurrences.—It was pointed out by Coburn many years ago that the streptococcal pharyngitis which precedes the rheumatic recurrence may be extremely mild and can therefore be easily overlooked in ambulatory patients. In our series of 38 clear-cut rheumatic recurrences, 50 per cent of the children either had no symptoms or the symptoms were so slight that they were only detected because the patients were in an institution where temperatures are recorded three times daily and throat cultures are taken routinely every week and more often when indicated.

The complaints and the clinical and laboratory findings in these 38 cases of streptococcal upper respiratory infections followed by rheumatic recurrences are presented in Table 5.

In the first 5 of these 38 children, the appearance of the epidemic inducing streptococcus in the throat was not accompanied by complaints or by clinical or laboratory findings. In these 5 instances, the presence of the organisms was revealed by routine throat cultures. In spite of the absence of clinical symptoms, the appearance of these streptococci in the throat was followed by a rise in antistreptolysin O titer, indicating that infection had taken place.

Five children complained of sore throat or coryza, but they did not develop fever or leukocytosis.

Two children, who complained of sore throat, had no fever although the white blood count was elevated.

In 7 children a complaint of "sore" throat or malaise was accompanied by a rectal temperature of less than 101 F., lasting one day.

In 19, or 50 per cent of the 38 children, therefore, the symptoms of upper respiratory infection were so slight that they might easily have been overlooked or completely forgotten by the patient during the latent period before the appearance of rheumatic manifestations. In spite of the mildness of the streptococcal infection, a majority—namely, 15—of these 19 patients showed a definite antibody response as indicated by a rise in antistreptolysin O titer.

These findings may help to explain why evidence of a preceding throat infection in ambulatory patients or in patients in institutions where throat cultures and antistreptolysin O titers are not done routinely is so often lacking.

Children in whom the appearance of a new type of streptococcus in a routine throat culture was not accompanied by complaints, symptoms, an elevation of white blood count, or by a rise in antistreptolysin O titer were considered to be carriers. In our experience, rheumatic sequelae have not been observed in children who became streptococcus carriers.

It is evident from our observations, as well as from the report of Stowell and Button,[10] that toxic reactions are not uncommon in patients receiving prophylactic doses of sulfanilamide. French[11] and French and Weller[12] have recently described a high incidence of interstitial myocarditis in patients who died following the administration of therapeutic doses of sulfonamide drugs. Furthermore, these authors have been able to reproduce similar lesions in rats and mice by the injection of these drugs.

is called the Cardiac Classification Service to diagnose children suspected of heart disease by the school physician. This service has proved to be extremely valuable.[7] It functions to provide a more accurate diagnosis of the cardiac status and serves to educate school physicians in the recognition of rheumatic fever and rheumatic heart disease. A special feature of this service is its availability to family physicians for their school-child patients. That private physicians would welcome such consultation service was one of the first discoveries of the Astoria School Health Study.[6] Early in that study it became routine procedure to follow up personally the preliminary diagnoses in order to get acquainted with the physicians in the community and to offer the consultation service. Some of these diagnoses were vague and gave little information to the school. A factor in the poor reporting was the form used by the school. It was found that this form was considered too complicated and demanded too much irrelevant information by 90 per cent of the group of 300 private physicians. A more practical and acceptable form was introduced, based on the Standard Nomenclature of the American Heart Association.

A summary of the Astoria developments, with respect to rheumatic fever and heart disease, may be suggestive to the pediatrician concerned with developing the potentialities of his community school health program:

1. The diagnostic nomenclature was standardized to conform to the American Heart Association classification.
2. Diagnostic services were established for the school physician and on request for the private physician.
3. The importance of regular medical supervision of known cardiac children was stressed.
4. By personal contacts and improved but simplified reporting forms, the relationship between school and treatment agencies was strengthened.
5. The importance of rheumatic fever as the cause of the majority of cases of heart disease in children was emphasized so that teachers, nurses, and physicians in the school would be on the alert to recognize the early signs of first, as well as recurrent, attacks.
6. Less reliance was placed on codes, symbols, and labels on records in the hands of nonprofessional staffs, and more emphasis was placed on explanation, interpretation, and guidance as the best method of improving the understanding and care of children with rheumatic heart disease.

Cincinnati and Rochester,[8] to my knowledge, have diagnostic service somewhat similar to that of New York City. As an illustration of the value of the examination by the cardiac consultant is the report of Wilzbach,[9] based on examination of approximately 2,000 Cincinnati high school youths. They were examined first by school physicians. One hundred and forty-one individuals were classified by the school physician as having cardiac defects. When the boys were re-examined by the cardiac consultant, only 29 were found to have heart disease. This diagnostic service is certainly necessary for the school physician and might prove acceptable to other physicians in the community. It is not unlike the consultation service which many communities now have for the diagnosis of tuberculosis, the value of which was first demonstrated in Framingham many years ago in the control of that disease.[10]

Pediatricians cannot only stimulate and assist the school to develop more effective procedures to find children with rheumatic fever and rheumatic heart disease, but also can impress the school personnel with the importance of maintaining rheumatic children under medical supervision. Procedures are needed to give teachers information about when and where children are receiving medical attention. Teachers also need to know the importance of safeguarding rheumatic children as far as possible from respiratory infections. An example of this need is a teacher in a classroom which I visited to inquire about a child with rheumatic heart disease. She remarked that the child was absent and that she was very much annoyed because he was absent so frequently. I asked the cause of the present absence, and she replied that he had a sore throat! It cannot be emphasized too frequently that one of the great needs in the whole field of school health is the health education of teachers themselves.

Aside from problems associated with the school there are many other aspects of the rheumatic fever problem in his community which merit the pediatrician's attention. For example—how adequately are cases being treated in the community? Are children kept in bed for a sufficient length of time? Are there enough hospital beds for the care of rheumatic children during the acute stage? Are there enough suitable facilities so that children can receive care for a sufficient length of time? If facilities for long-time care are inadequate, are there institutions which might be converted for that purpose? Or are foster homes available? Would it be more practical as an operational policy to develop foster-home facilities? What is the quality of care being given in institutions and foster homes, particularly with respect to the education of children and their mental hygiene? And last,

resented only 25 deaths a year from heart disease for ages 5 to 14. I am sure that if he had 25 deaths a year in this age group from diphtheria or infantile paralysis, his attitude would be quite different. Recently, in that very State, there have been worse outbreaks of rheumatic fever in Army camps than in many other sections of the country. It may be hard even to convince some physicians that the disease is not rare. One busy physician in one of our States said that he had not seen a case of rheumatic fever in years and believed that the effort to interest the community in rheumatic fever was "barking up the wrong tree." Yet, in a city not many miles away where a special rheumatic fever project has been operating for several years, a substantial number of cases have been diagnosed right along. There appear to be two important factors which determine whether, in local judgment, rheumatic fever is prevalent: (1) an interest in looking for it, and (2) familiarity with its manifestations.

What can the pediatrician do about increasing the effectiveness of the school in the control of rheumatic fever? He can make a start by securing the cooperation and action necessary to find the answers to these questions. How much rheumatic fever exists in the community? What role is the school playing in the discovery of children with rheumatic fever? Is the school service organized to follow up known rheumatics? How reliable is the school physician in the selection of children with cardiac defects? In a small community, a pediatrician may have to take the initiative single-handed. But in larger communities the problem can better be solved by group action. The first step might be to raise these questions with several other physicians, including the health officer, and determine on a plan to be presented for discussion with the school superintendent. A practical way to determine the magnitude of the rheumatic fever problem in the community is through a school survey. This might be discussed with the school superintendent. Finding cases of rheumatic heart disease is only one measure of the magnitude of the problem, to be sure, but it would form the basis for further steps in developing a constructive program. This, unfortunately, as was said earlier, is where most surveys have ended. It should be only the starting point in developing a school health program which will be based on known facts concerning the nature of rheumatic fever.

Because these facts are not widely known, few school health services today are prepared to participate in an adequate rheumatic fever case-finding program. The school health service has been primarily concerned with finding cardiac defects. This, with our present knowledge of rheumatic fever, and from a possible preventive point of view, is putting the cart before the horse. It is not necessary to minimize the finding of cases of rheumatic heart disease, but more emphasis must be placed on developing procedures to discover children who may show signs and symptoms of rheumatic fever; to place these children under medical observation whenever necessary; and to prevent—as far as possible—those who have had an attack of rheumatic fever from developing a recurrence of the disease. Such procedures will be possible when teachers and school nurses understand the manifestations of rheumatic fever, its chronic recurrent nature, and the possible danger to rheumatic children of respiratory infections. More attention must be given to a family history of rheumatic fever. All children from so-called "rheumatic" families should be examined carefully. Finally, the school physician should be allocated time to give consulting service to the nurse and to the teacher whenever they suspect children of having rheumatic fever.

Teachers have a rare opportunity through morning inspection and observation of children throughout the day. It has been demonstrated that with medical guidance teachers can become efficient in selecting children in need of medical attention.[6] This development of the teachers' alertness in regard to pupil health is more important than ever today because there is even less medical service available in the schools. Teachers must be prepared, and their interest sustained, by in-service courses and experience with clinical material. The purpose of this instruction is not to teach diagnosis but to develop understanding of normal appearance and behavior and the signs and symptoms associated with illness. This preparation of classroom teachers requires the understanding and cooperation of the school superintendent. He must provide time, and the interested pediatrician must assist with the preparation of teachers. This is not a new kind of health service. I am simply proposing that medical aid be given teachers to improve their powers of observation. This kind of teacher-alertness and health supervision, operating in every classroom from day to day, is necessary if the teacher is to function effectively in bringing to medical attention possible cases of rheumatic fever.

Necessary also, if the school is to function effectively in case-finding, is a consultation service for the physician when he suspects a cardiac condition or rheumatic activity. There are several school systems where this type of diagnostic service is available. In 1940 the New York City Health Department instituted what

is called the Cardiac Classification Service to diagnose children suspected of heart disease by the school physician. This service has proved to be extremely valuable.[7] It functions to provide a more accurate diagnosis of the cardiac status and serves to educate school physicians in the recognition of rheumatic fever and rheumatic heart disease. A special feature of this service is its availability to family physicians for their school-child patients. That private physicians would welcome such consultation service was one of the first discoveries of the Astoria School Health Study.[6] Early in that study it became routine procedure to follow up personally the preliminary diagnoses in order to get acquainted with the physicians in the community and to offer the consultation service. Some of these diagnoses were vague and gave little information to the school. A factor in the poor reporting was the form used by the school. It was found that this form was considered too complicated and demanded too much irrelevant information by 90 per cent of the group of 300 private physicians. A more practical and acceptable form was introduced, based on the Standard Nomenclature of the American Heart Association.

A summary of the Astoria developments, with respect to rheumatic fever and heart disease, may be suggestive to the pediatrician concerned with developing the potentialities of his community school health program:

1. The diagnostic nomenclature was standardized to conform to the American Heart Association classification.
2. Diagnostic services were established for the school physician and on request for the private physician.
3. The importance of regular medical supervision of known cardiac children was stressed.
4. By personal contacts and improved but simplified reporting forms, the relationship between school and treatment agencies was strengthened.
5. The importance of rheumatic fever as the cause of the majority of cases of heart disease in children was emphasized so that teachers, nurses, and physicians in the school would be on the alert to recognize the early signs of first, as well as recurrent, attacks.
6. Less reliance was placed on codes, symbols, and labels on records in the hands of nonprofessional staffs, and more emphasis was placed on explanation, interpretation, and guidance as the best method of improving the understanding and care of children with rheumatic heart disease.

Cincinnati and Rochester,[8] to my knowledge, have diagnostic service somewhat similar to that of New York City. As an illustration of the value of the examination by the cardiac consultant is the report of Wilzbach,[9] based on examination of approximately 2,000 Cincinnati high school youths. They were examined first by school physicians. One hundred and forty-one individuals were classified by the school physician as having cardiac defects. When the boys were re-examined by the cardiac consultant, only 29 were found to have heart disease. This diagnostic service is certainly necessary for the school physician and might prove acceptable to other physicians in the community. It is not unlike the consultation service which many communities now have for the diagnosis of tuberculosis, the value of which was first demonstrated in Framingham many years ago in the control of that disease.[10]

Pediatricians cannot only stimulate and assist the school to develop more effective procedures to find children with rheumatic fever and rheumatic heart disease, but also can impress the school personnel with the importance of maintaining rheumatic children under medical supervision. Procedures are needed to give teachers information about when and where children are receiving medical attention. Teachers also need to know the importance of safeguarding rheumatic children as far as possible from respiratory infections. An example of this need is a teacher in a classroom which I visited to inquire about a child with rheumatic heart disease. She remarked that the child was absent and that she was very much annoyed because he was absent so frequently. I asked the cause of the present absence, and she replied that he had a sore throat! It cannot be emphasized too frequently that one of the great needs in the whole field of school health is the health education of teachers themselves.

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THE EFFECTIVE USE OF THYROID IN PERIODIC PARALYSIS

ALEXANDER WOLF, M.D., Captain M.C., A.U.S.

THERE are many seemingly irreconcilable contradictions in the pathophysiology and chemistry of periodic paralysis. This paper, in addition to reporting a new treatment of the syndrome, is an attempt to pose, and in some instances to resolve, these contradictions. There can be no final solution, only a continuous movement in the direction of greater scientific understanding. This report is a single step in that process. Socrates in Plato's *Dialogues* discovered truth by stating a proposition, finding a contradiction to it, and, making corrections in the light of this new discovery, finding still another contradiction. This went on endlessly. Hegel in *The Science of Logic* remarked that all scientific development acquired impulse and activity only because it contained within itself seemingly incompatible elements. Scientific change is always negating itself, turning into its opposite, containing within itself its own opposite. It is in the light of these conceptions that the apparent contradictions in the following data will be better understood, resolved, and accepted. If the conflicting material is merely sought out and posed, its frequent re-examination, correction, and ultimate synthesis will produce some new clarification and a new point of departure.

This is in the main a report of the effective use of thyroid substance in 7 cases of family periodic paralysis. Treatment thus far has prevented the development of attacks for the past year and a half. All the patients studied were related. Their position in the family tree is pictured in the shaded squares (Fig. 1). Only 7 of 19 members of the family were available for thyroid administration. An eighth patient undertook prolonged treatment with thiamin chloride. Every individual who was treated suffered from typical periodic paralysis. Several were studied and reported to the literature by Schoenthal[1] in 1934. None of the patients in my series derived any benefit from potassium chloride by mouth. For the most part their attitude was one of resignation to the inevitably recurrent attacks and distrust of the physician who would evaluate the effect of one or another drug. They were not unjustified in such conduct, since several of them had been subjected to rather painful experience in the spirited search that had been made by various investigators for greater understanding of the nature of their illness and a more effective remedy. To our common good fortune one of the patients, J. O., attached himself to me in 1936 and insisted, regardless of time or pain, on a solution of his paralytic difficulties. We are indebted to his persistence and fortitude.

From the Rehabilitation Center, 1536th Service Unit Fort Knox, Kentucky.

Laboratory Data

Four patients, J. O., M. B., H. B., and H. H., were available for all or part of the following experimental routine imposed in the course of a single day.

1. No breakfast.
2. Metabolic rate determination.
3. Estimation of blood potassium.
4. Testing deep reflexes.
5. One- to five-mile walk and/or injection of 20 to 30 units of insulin.
6. Development of attack.
7. Metabolic rate determination.
8. Estimation of blood potassium.
9. Testing deep reflexes.
10. One-half to $1^1/_2$ grains of thyroid substance orally or 0.25 to 2 mg. thyroxin intravenously.
11. Clinical observation of recovery.
12. Estimation of blood potassium.
13. Testing deep reflexes.

Laboratory data obtained in the case of J. O., December 1, 1941:

9:00 A.M.	Metabolic rate: −5. Deep reflexes: never present at any time (patient suffered from muscular dystrophy as well as from periodic paralysis).
9:30 A.M.	Five-mile walk and 30 units of insulin.
11:15 A.M.	Development of seizure. Patient very tense.
11:30 A.M.	Metabolic rate: −69.
11:40 A.M.	Blood potassium: 29 mg. per 100 cc. of serum.
11:45 A.M.	One milligram of thyroxin intravenously. Perspiration stopped at once; patient relaxed.
11:55 A.M.	One milligram of thyroxin intravenously.
12:00 P.M.	No sign of paralysis.
12:25 P.M.	Blood potassium: 40 mg. per 100 cc. of serum.

Laboratory data obtained in the case of H. H., December 12, 1941:

9:00 A.M.	Metabolic rate: −2. Deep reflexes: never present at any time (patient suffered from muscular dystrophy as well as periodic paralysis).

but most important, what efforts are being made in the community to coordinate the various agencies interested in the care of children with rheumatic fever and rheumatic heart disease? All of these questions and many others are involved in a well-rounded program of rheumatic fever control. The nature of the questions indicates how complicated the management of rheumatic fever is. Like tuberculosis and syphilis, the control of rheumatic fever requires the cooperation of many agencies. Community projects depend on having someone take the initiative. It seems appropriate for pediatricians to be the ones to initiate interest in their communities, looking to the better management of this disease. The pediatrician considers the whole child and understands that heart disease is a late stage of the condition. A broader approach to the problem may lead to earlier discovery of cases and the prevention, perhaps, of the more severe type of chronic rheumatic heart disease. Furthermore, such an interest on the part of pediatricians in their community's school health program would inevitably lead to more practical school health service.

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Discussion

Dr. Alexander T. Martin, *New York City*—Discussion of these three papers can add but little to what has been said. The problem of rheumatic fever has had growing interest in recent years, and its importance has been given added impetus by the war because of its increasing incidence in the military services.

The importance of rheumatic fever as a public health problem in our country today can be best pictured by the following figures. It is estimated that there are between 800,000 and 1,000,000 individuals afflicted with rheumatic heart disease and that there are about 40,000 deaths a year, with the average age of death at 30 years. As far as I know, there are no figures available as to the incidence rate in the military services.

Rheumatic fever is essentially a disease of childhood. Approximately 200,000 children between the ages of 5 and 19 years are suffering from rheumatic heart disease. These represent about 1 per cent of the school population. As the disease is not reportable except in a few states, these figures are approximate and are probably far too low.

The three papers that were presented here this morning have added much to our knowledge of the disease, and they indicate the progress which has been made in its control. Chemoprophylaxis with the use of the sulfonamides holds out great promise in its effect upon the hemolytic streptococcus. This organism can be likened to a detonator in the initiation of the rheumatic infection, the cause of which is still not known. Dr. Kuttner, in her carefully controlled study, has given us some really significant figures. However, it must be borne in mind that her study was carried out in a controlled environment where toxic manifestations could be closely observed. I would caution those physicians who would use the sulfonamides for prophylaxis in ambulatory patients to check the blood and urine carefully during the course of the drug administration. An occasional blood level for free and total drug is advisable and is an accurate measure of the therapeutic response. I would here again reiterate what other students of the disease have stated—that the sulfonamides are contraindicated during the active phase of the rheumatic infection, when they do more harm than good. Their use should be confined to prophylaxis only.

As physicians, we must be constantly on the alert to recognize the disease in its earliest stages so that prompt treatment can be instituted. This usually means prolonged bed-rest and is comparable to the treatment of tuberculosis. There is no reason why the child with rheumatic infection should not have as prolonged bed-rest as the child with tuberculosis. Optimal results from an adequate sanatorial type of care would be expected in the monocyclic types of the disease before the heart has been seriously damaged. We must remember that diagnosis is often extremely difficult, that the disease is protean in its manifestations, that it is polymorphic in its character, and unpredictable in its course. This latter is due to its tendency to recur following the initial infection.

There is one more point which I should like to leave with you. It is that joint infection (polyarthritis) and rheumatic infection in children are not synonymous. The younger the child the less likely are the joints to be involved. This is a common error of belief among physicians, nurses, and the lay public.

Largely through the efforts of Dr. Wheatley, a nationwide educational program on rheumatic fever has recently been launched. Fourteen states have already instituted state programs in the care of rheumatic children, and four other states have made application to the Children's Bureau.

There is an ever-widening interest in this very serious and crippling disease of childhood. As physicians we should have an awareness of its presence as an important public health problem, not only in our civilian population but also in our armed forces.

J. O., a man, aged 33, for a period of six months took 1/2 to 1 grain three times a day and so managed to avoid attacks. It was found more practicable to take 1 grain, if he felt a seizure coming on. As a rule, this dose prevented the development of the attack. If this failed in part to anticipate the spell, another grain would do so completely. None of the patients lost weight except J. O. He was the man who insisted on our finding an effective remedy for his illness and on whom thyroid was originally used. In his enthusiasm over the newly discovered treatment and a wish to impress others in his family regarding its benefits and harmlessness, he took 3 or 4 grains a day for a period, more than he actually needed to avoid seizures. He lost 10 pounds in weight. Warned regarding the dangers of too high a dosage, he reduced it and regained his weight. In the last six months of treatment 1/2 grain a day prevented the appearance of attacks. He made a striking response to iodine, administered over a period of two weeks in the form of potassium iodide, 3 grains daily. He developed progressive weakness, apparently as thyroid function became depressed.

H. H., a 23-year-old man, in the first months after finding thyroid substance a preventive of attacks, took 1/2 grain three times a day. Shortly it was found unnecessary to use medication at regular intervals. One-half to 1 grain taken during the aura (hunger, perspiration, mild sensations of weakness) anticipated a seizure. On one occasion he developed a very severe attack and took 2 grains at once. Within fifteen minutes he took another 1/2 grain, and, twenty minutes later, still another 1/2 grain. The seizure disappeared within forty-five minutes of its onset. Ordinarily, without thyroid, a spell like this would have lasted three days.

H. B., a man of 47, made the least impressive response to thyroid in the group. He used the medication irregularly. He never took it for more than one week, when he averaged 1 or 2 grains a day. It may be that in his case, as in others, he should not have taken doses several times daily but should have taken larger ones just prior to a seizure.

M. B., a girl aged 14, prevented attacks every day by taking 1/4 to 1/2 grain during the aura.

A curious contrast exists in the responses to thyroid between H. B. and M. B., father and daughter, respectively. In the laboratory studies on December 12, 1941, M. B. made a rather slow and somewhat incomplete recovery in response to thyroid but profited immensely from daily, 1/4 to 1/2 grain doses to the extent that they anticipated attacks completely. H. B., on the other hand, made an excellent response with thyroid to insulin-induced paralysis in the laboratory study but showed only unspectacular benefit from the daily use of thyroid. It may be that insufficient glandular substance was given to M. B. in the laboratory test. There was some hesitation in using larger doses, since she was a child of 14. Again, it is unlikely that H. B. ever took adequate daily doses. His attitude was somewhat distrustful, and it is doubtful that he took the regular dose prescribed. S. O., a man aged 30, and B. B., a man aged 36, consumed 1 or 2 grains a day in the prevention of seizures. Apparently some patients fare better if they take thyroid only with the first slight indication of an oncoming attack. Others prefer and seemingly do just as well taking doses one, two, or three times regularly every day.

The Thyroid Gland and Periodic Paralysis

Observations regarding the possible relationship between periodic paralysis and endocrine disturbances were made early. Shinosaki,[2] in 1926, stressed the relationship between periodic paralysis and the glands of internal secretion. He[2a] and others[1,2b,3] noted the relationship between periodic paralysis and exophthalmic goiter. Enlargement of the thyroid has been observed in patients with periodic paralysis in more than 35 cases. J. O. developed vitiligo on the back of his hands in the spring of 1942. This skin condition is, of course, frequently seen in association with disorders of the thyroid gland. It has been noted that seizures tend to appear at puberty or adolescence, that they are commonly absent during pregnancy,[4] and that they have a tendency to disappear in late adult life.[5] This trend suggests some disturbance in endocrine function. The thyroid gland is called upon to exert its largest metabolic activity from puberty to late adulthood, the interval of active periodic paralysis. It is possible that the thyroid fulfills this role quite inadequately in periodic paralysis. In the forties and afterward oxidative processes decrease as do the demands made on the gland. And it is at this time that natural recovery takes place in periodic paralysis. The absence of attacks during pregnancy suggests the replacement of maternally inadequate thyroid by fetal thyroid or the raising of maternal metabolic function to adequate levels under the demanding pressure of the fetus. The development of exophthalmic goiter in the course of periodic paralysis suggests a compensatory hyperplasia of the gland in a failing or inadequate attempt on the part of the struggling organism to meet the bodily requirements of thyroid secretion. Those patients who develop goiter and hyperthyroidism are sporadic cases, not of the familial variety.[2b,3b]

Other investigators[1,2b,3b,e,i,6] have reported the *harmful* effects of thyroid substance in periodic paralysis and the beneficial results of thyroidectomy or irradiation of the gland. On the other hand, none of my patients showed any improvement after potassium chloride administration. These are contradictions as yet unsolved. It has been observed[2a,3b,7] that the administration of thyroid results in a definite increase in the frequency and severity of attacks. Talbott[3b] even goes so far as to say that the gland participates in the pathogenesis of paralysis and that death

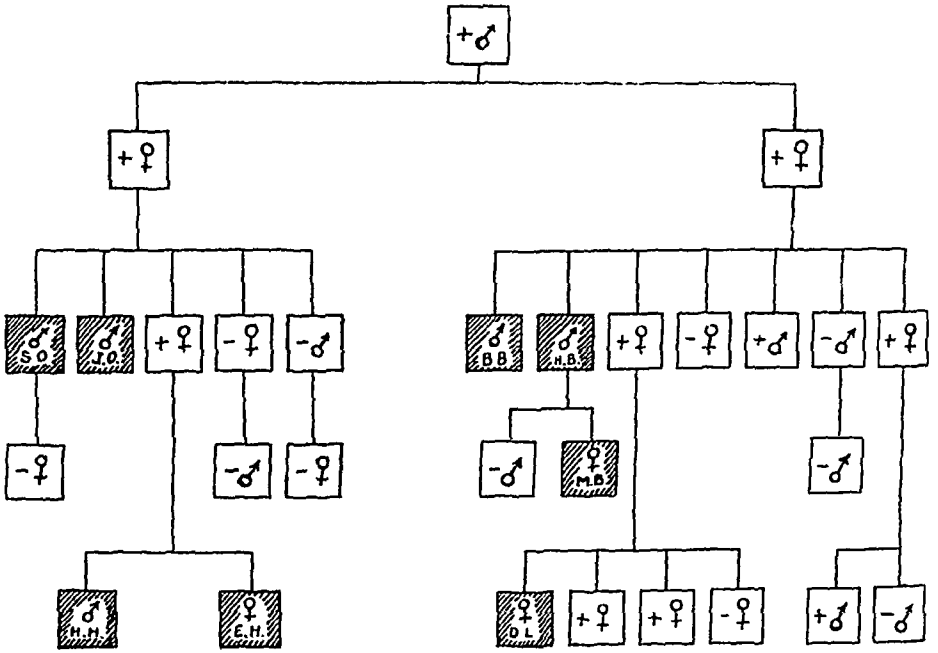


FIG. 1

9:40 A.M. Refused to submit to injection of insulin. Developed very mild seizure after one-mile walk.
9:50 A.M. Blood potassium: 21 mg. per 100 cc. of serum.
Metabolic rate: refused.
10:23 A.M. Thyroid substance: 1½ grains orally.
10:50 A.M. Subjective sense of return of strength and clinical observation of recovery.
10:55 A.M. Blood potassium: 30 mg. per 100 cc. of serum.

Laboratory data obtained in the case of H. B., December 12, 1941:

9:26 A.M. Blood potassium: 25 mg. per 100 cc. of serum.
9:50 A.M. Metabolic rate: +9.
9:55 A.M. Deep reflexes active.
10:00 A.M. Twenty units of insulin.
11:15 A.M. Mild seizure. Perspiration.
11:20 A.M. Metabolic rate: +12.
11:25 A.M. Deep reflexes absent.
Blood potassium: 35 mg. per 100 cc. of serum.
11:30 A.M. One grain of thyroid substance by mouth and 1 mg. of thyroxin intravenously.
11:33 A.M. Stopped perspiring. Recovered strength.
11:45 A.M. Blood potassium: 25 mg. per 100 cc. of serum.

Laboratory data obtained in the case of M. B., December 12, 1941:

9:20 A.M. Deep reflexes active.
9:25 A.M. Blood potassium: 22 mg. per 100 cc of serum.
10:10 A.M. Metabolic rate: −9.
10:20 A.M. Walked one mile.
11:30 A.M. In a seizure. No deep reflexes.
11:40 A.M. Metabolic rate: +21.
11:45 A.M. Blood potassium: 28 mg. per 100 cc. of serum.
11:50 A.M. One grain of thyroid substance orally.
11:55 A.M. 0.25 mg. thyroxin intravenously.
12:10 P.M. 0.45 mg. thyroxin intravenously.
12:15 P.M. Incomplete recovery.
12:45 P.M. Blood potassium: 23 mg. per 100 cc. of serum. Incomplete recovery.

Dosage

The dosage of thyroid substance varies.

E. H., a woman, aged 22, takes ½ grain twice a day regularly and has not had a seizure in a year and a half.

These findings do not fit in with the concept of acute thyroid failure. M. B. did not recover from her severe paralysis with the dramatic immediacy of the others. She regained her strength much more slowly. However she takes 1/4 to 1/2 grain of thyroid daily and in this way successfully wards off attacks. H. B. recovered from a severe attack quite quickly under the influence of thyroid only to discover in a little while that the seizure was returning in some degree. Of all the patients his consistent daily response to thyroid while of some benefit has been rather disappointing. It may be that the rise in metabolic rate and serum potassium shown by M. B. and H. B. in paralysis indicates an internal attempt to increase thyroid secretion in order to relieve the attack. J. O.'s failure to show a similar rise in rate may point to a more serious thyroid deficiency. The degree of this failure in a seizure may be a relative indicator of the responsiveness of any particular patient to thyroid.

Another contradiction appears in the elevation of blood potassium and metabolic rate in H. B. and M. B. and a decrease in blood potassium and metabolic rate in J. O. and H. H. Can it be said that, since in the cases of H. B. and M. B. there is in paralysis an elevation of metabolic rate and blood potassium, thyroid cannot be effective simply through its elevation of the metabolic rate and the blood potassium? Must not the therapeutic process therefore operate by some other mechanism? Not necessarily. In view of the other contradictions seen in periodic paralysis it may be that there is a variety of hypothyroid paralysis and another of hyperthyroid paralysis. This fails to explain the effectiveness of thyroid substance in the relief of M. B.'s seizures. J. O. and H. H. had muscular and reflex changes that H. B. and M. B. did not exhibit. These differences may have some significance in clarifying the ultimate understanding of their contradictory blood potassium and metabolic rate determinations. J. O. and H. H. revealed muscular dystrophic changes and persistent absence of deep reflexes. H. B. and M. B. showed no dystrophy, and their tendon reflexes returned in paralysis-free intervals. Another observation may have some explanatory significance. While H. H. is 23 and J. O. is 33, M. B. is 14 and H. B. is 47. The latter two are respectively at the beginning and end of the active period of the syndrome, while the former are at its central height. The demands made on the thyroid at these different periods may account for their variable responses in the laboratory study.

There appears to be a shift of potassium from the cells to extracellular space in the seizure, which looks to the thyroid for restoration of normal relations. If the patient's gland is able to supply sufficient secretion, there is an elevation of metabolic rate in the attack with spontaneous recovery. If the gland becomes goiterous in the effort to carry out its corrective role, the toxic secretion has less therapeutic power than normal thyroid. Goiterous secretion may, in fact, provoke attacks. Here too, of course, the metabolic rate is elevated. When the gland fails to respond to the stimulus of potassium displacement in the attack either by greater or by toxic secretion, the metabolic rate falls in the seizure, which then responds to thyroid replacement therapy. In any case an overall generalization may be made: there appears to be a familial variety of periodic paralysis without exophthalmic goiter which responds to thyroid and not to potassium, and a sporadic type of paralysis which may or may not be accompanied by exophthalmic goiter which responds to potassium and removal or irradiation of the thyroid. Finally, considerable doubt must be thrown on the kind of evidence that a determination of metabolic rate offers to the examiner in evaluating the immediate level of thyroid function. The basal metabolic rate may not be a reliable indicator of thyroid function,[11] failing in many instances to pick up hypothyroid states.[12] It should be recalled that so far as we know oxidative processes are not seriously enlarged until four or five days after the administration of thyroid substance. Consequently, the metabolic reading should not fall or rise with dramatic immediacy on thyroid failure or replacement. And so the foregoing conjectures regarding the significance of the metabolic rate determinations must be left open for further investigation.

The Thyrotropic Hormone and Periodic Paralysis

Further evidence that thyroid function is disturbed in periodic paralysis is indicated by the frequent presence of the various eye signs of toxic diffuse goiter[2b,13] (von Graefe's, Stellwag's, Dalrymple's). These become particularly obvious just prior to and during an attack of paralysis. Morrison and Levy[2b] reported a case with exophthalmos, widening of the palpebral fissures, von Graefe, Stellwag, and Möbius signs. Removal of the thyroid gland provokes the anterior portion of the pituitary gland to secrete more thyrotropic hormone, because thyroxin is removed as an oxidizing agent. If oxidative processes are still further reduced, exophthalmos usually occurs.[14] Protrusion of the eyeballs is occasionally aggravated by thyroidectomy.[15] The conclusion to be drawn is that the thyrotropic hormone of the pituitary rather than thyroxin produces exophthalmos.[14] Russell Brain[6] believes that exophthalmic ophthalmoplegia with thy-

during attacks in two patients was attributable to a superimposed thyrotoxicosis. Emphasis has been placed on the weakness frequently seen in exophthalmic goiter in order to reinforce the suggestion that an overactive thyroid is the paralyzing agent in periodic paralysis.[2,3b,h,6] There is no question that in the course of thyrotoxicosis there develops insidiously a muscular wasting and weakness referred to as chronic thyrotoxic myopathy.[6] Even the tendon reflexes are diminished or lost as in the attacks of periodic paralysis. Thyroxin and thyroid substance are not, however, the same as the toxic secretion of a goiterous gland.[3f] The difference between them must be kept in mind in order better to understand why exophthalmic goiter fails to improve—in fact, aggravates—periodic paralysis, while thyroxin and thyroid substance relieve it. It would seem that the thyroid gland of the periodically paralytic enlarges in an effort to produce adequate thyroxin to forestall seizures. But in the attempt to make this quantitative change, a qualitative alteration in the structure, function, and secretion of the gland takes place which defeats the original corrective intention.

A question must be raised regarding the nature of the seizure. There is no doubt great variability in the function of the thyroid. It is called upon to secrete thyroxin in the degree which bodily activity demands. Just as in normal individuals spells of fatigue are probably due to some rupture in the equilibrium existing among the glands of internal secretion, which is relieved by thyroid,[3f] so in periodic paralysis the seizure may well be due to recurrent thyroid failure. Is it possible that there is a transitory decrease in metabolic rate during some attacks? In hypothyroidism, as in the seizures of periodic paralysis, there is bradycardia,[3h,8] hypotension,[3h,8a] possible cardiac dilatation,[8a] slowing of peristalsis,[3f] constipation,[3f] a decrease in gastric secretion,[3f] increased pancreatic function, cold extremities,[8b] depressed deep reflexes,[9] and depressed oxygen consumption by muscle. By contrast the deep reflexes, which in periodic paralysis return with the administration of thyroid, are likewise active in hyperthyroidism. It is a common experience in periodic paralysis to find that inactivity or lying still precipitates seizures. It is likewise the experience in thyroid imbalance to find that persistent inactivity lowers metabolic function, while overactivity raises it. It may be then that one of the elements in periodic paralysis is a sluggishness in thyroid secretion. A curious reaction before and after the attack has been noted[1]—namely, a sense of fatigue just prior to the seizure and a feeling of being refreshed and invigorated afterward. One of the most striking changes that takes place following the administration of thyroid is that in the facial expression. Tense and anxious in the seizure, the patient quickly comes out of it relaxed, smiling, refreshed. This, too, suggests a failure and recovery of thyroid function as well as a concomitant fall and rise in serum potassium. The conception of the seizure as recurrent thyroid failure fits in well with the clinical experience that working or walking prevents the development of an attack, very likely because activity stimulates the gland. The process suggests a capacity to call upon the body to increase its metabolic rate, of which the thyroid is the supreme governor. This is probably the organism's natural technic for mobilizing sufficient glandular secretion to overcome an impending attack of paralysis. Evidently moderate activity prevents the precipitation of the spell. Overactivity or excitement, however, are often followed by a seizure. Perhaps the secretory power of the thyroid gland, limited to begin with, becomes exhausted by the great demand put upon it. At such times the oral administration of thyroid substance relieves the attack. In the absence of such external replacement, recovery from paralysis awaits spontaneous recovery of thyroid function.

Talbott[3h] described an elevation of basal metabolic rate in periodically paralyzed patients with thyrotoxicosis and in patients without thyrotoxicosis an increased rate during paralysis. Möller and Kirk[10] found a high basal metabolic rate during attacks. Talbott[3h] suggested that there may possibly be a transient disturbance of the intermediary metabolism of carbohydrate, which demands an increased oxygen intake. This seems like a natural inference. But the impression is gained that the thyroid gland is in many instances unable to meet the demand put upon it to secrete more thyroxin. Failing this, artificial replacement with thyroid substance relieves the seizure. Basal metabolic rates taken on five patients during three intervals, when they were not paralyzed, were all normal.

During a particularly severe seizure, J. O. showed a metabolic rate of −69. This was after a walk of several miles. Toward the end of the test the patient was so weak that he was unable to seal his lips firmly about the mouthpiece and so his oxygen consumption appeared lower than it actually was in fact. While the metabolic rate was probably low it certainly could not have been so low as −69. Following intravenous thyroxin and recovery from the attack the metabolic rate was −11.

M. B., after a brisk walk, had a metabolic rate of −9 prior to an attack. In a seizure her rate rose to +21.

H. B. showed a metabolic rate of +9. In a paralytic attack the rate rose to +12.

well to thyroid, if its therapeutic influence was demonstrated in part through an elevation of serum potassium, particularly in view of the fact that the administration of potassium alone exerted no helpful effect. The answer lies in the control thyroid exercises over the deposition of potassium. It shifts the ion from the extravascular spaces, liver, and muscle to the serum. Evidently, in the patients I studied, no tolerable amount of potassium ingested without thyroid would bring about this shift unless thyroid substance was added. That this explanation hardly covers all the facts is amply indicated by M. B.'s and H. B.'s profitable response to thyroid with a concurrent decrease in serum potassium.

Carbohydrate Metabolism and Periodic Paralysis

Talbott[21h] has noted the disturbance of carbohydrate metabolism, both in periodic paralysis and in thyroid disease. The ingestion of excessive carbohydrate may precipitate an attack.[21b,21b,c] It is possible that sugar provokes the seizure in some measure by stimulating insulin secretion. Hunger or the injection of insulin, which lowers serum potassium and phosphate, has an intensely paralytic effect.[21b,c,d] Patients are fearful of developing excessive appetite since they know it to be a precursor to the seizure. Even the most cooperative patient, J. O., dreaded the injection of insulin after one previous experience with it. H. B., when examined before breakfast on December 12, 1941, was given 20 units of insulin. He developed a fierce appetite and then an attack. A grain of thyroid substance by mouth and 1 mg. of thyroxin intramusculalry reduced his hunger considerably.

Thyroid inhibits the secretory activity of the pancreas,[2f] and exophthalmic goiter is accompanied by atrophy of the pancreas.[25] In thyrotoxicosis the blood sugar remains high following glucose ingestion.[3f,27] Talbott[21h] observes that in thyrotoxic patients removal of sugar from the intestinal tract may proceed at a faster rate than in normal individuals. Athyroidism in animals produces hypoglycemia,[27] and thyroidectomy increases the physiologic activity of the pancreas.[26] In hypothyroidism the inhibiting power on the pancreas is diminished.[2f] Geyalin,[29] in 1925, reported a case of myxedema with a blood sugar as low as 53 to 60 mg. per 100 cc. Marinesco and Parhon,[29] in 1908, found a hyperplasia of the islands of Langerhans following thyroidectomy. Talbott[21h] states that the parenteral administration of insulin is followed by adrenalin secretion, which in animals precipitates glycogenesis and a migration of serum potassium to the liver and muscle. He postulates the same deposition in man. Thyroid diminishes the glycogen content of the liver, muscle, and heart,[3f,31] returns potassium to the serum,[22] raises blood sugar, and produces glycosuria.[3f,31b]

Hoshimoto[32] found that thyroid extract decreased the diastatic activity of the pancreas. The diminution in appetite was in indirect proportion to the diastatic power, appetite being much increased when the diastatic power was very much diminished. Therefore, thyroid extract increases the appetite at the same time that it inhibits insulin secretion, a paralytic agent. The administration of potassium chloride to rats produces a marked decrease in the glycogen content of the liver.[33] Thyroid substance has the same effect.[32] It may be that the latter exerts its effect in part through its control over the shift of potassium in the tissues. Some patients have been reported in paralytic hyperglycemia. Others have been reported in paralytic hypoglycemia, again a contradiction. Insulin, in my experience the most potent paralyzing agent, lowers the blood sugar in provoking a seizure. The report of an occasional hyperglycemia and glycosuria during attacks in some cases[3h,34] would suggest that there may be an internal secretory response on the part of the thyroid in an attempt of the paralyzed organism to overcome the seizure. Neustaedter[34] sees the rise in blood sugar as a possible adrenal glycemia. Thyroid greatly diminishes the metabolism of carbohydrate by inhibiting the saccharification of amylaceous substances by pancreatic amylopsin. Consequently there is a loss of sugar in the urine. In hypothyroidism, on the other hand, the opposite is true.[3f] This would point again in the direction of the seizure of periodic paralysis as a state of acute thyroid failure, for in the latter the pancreas oversecretes, metabolizes carbohydrate, and lowers blood sugar, a potent mechanism in the precipitation of attacks. Still another factor pointing to the seizure as acute thyroid failure is the increased sugar tolerance in both hypothyroidism[3f] and periodic paralysis.[4] Shinosaki's[2] contention that patients with periodic paralysis have a decreased tolerance to glucose and that prolonged hyperglycemia is necessary to induce symptoms fits in with his group of patients, most of whom were suffering from hyperthyroidism, in which we see compensatory thyroideal responses producing a rise in blood sugar, etc.

Protein Metabolism and Periodic Paralysis

Since normally the pancreas peptonizes proteins through its trypsin, and thyroid inhibits this function, there is in hyperthyroidism a loss of peptones in the stools. The opposite is true in hypothyroidism.[3f] Talbott[21h] observed that during the administration of a high protein diet

rotoxicosis follows from an oversecretion of thyrotropic hormone and that the overactivity of the thyroid plays a lesser role in the ocular disturbance. It may well be that the eye signs in the seizure of periodic paralysis are due to anterior pituitary stimulation following on acute thyroid failure. Aird[16] has experimentally induced exophthalmos associated with myopathy through the use of the thyrotropic hormone. It has been demonstrated[17] that the latter provokes creatinuria. The fact that creatine is persistently present in the urine of the periodically paralytic may be due to the activity of this hormone. It will be interesting to observe in this connection whether or not the creatinuria and eye signs disappear in time with adequate replacement thyroid therapy, which permits a relaxation in thyrotropic hormone secretion.

Potassium and Periodic Paralysis

I believe that the hyperthyroidism that develops in the course of periodic paralysis is not a factor in the pathogenesis of paralysis so much as it is a compensatory design on the part of the organism to alter the physiology of intra- and extracellular potassium, and that it is in this sense an attempt to relieve the seizure. As early as 1901 Buzzard[19] used potassium in periodic paralysis. In 1934 Biemond and Daniels[10b] found low levels of serum potassium in an attack. In 1935 Walker[19] reported a case with abnormally low serum potassium during the seizure. Since then there have been numerous confirmations[3h] of the fact that potassium by mouth or intravenously relieves attacks. Aitken *et al.*[20] suggested that a lowering of the serum potassium either blocks neuromuscular transmission or inhibits the contractile response in muscles. There are many reports[3h,j,20,21] on the paralytic effect of insulin, of sugar, or of glucose and insulin, which lower serum potassium. The mechanism by which thyroid relieves seizures may lie in its inhibitory effect on insulin secretion[3f] and its power to elevate blood potassium.[22] Kinsell *et al.*[22] reported a rise in plasma potassium following the administration of thyroid, a phenomenon of catabolism in the normal individual. Talbott,[3f] however, recorded a thyrotoxic patient with severe muscular weakness who had a low serum potassium, another contradiction. Still, exophthalmic goiter is not ordinarily accompanied by a reduction in serum potassium.[3j] It has been reported[23] that there is no fixed level below which weakness develops. Allott and McArdle[24] tell of a patient who showed weakness whenever the serum potassium was below 16 mg. per 100 cc. Aitken *et al.*[20] observed paralysis whenever the serum potassium fell below 12 mg. per 100 cc.

H. B. showed a serum potassium of 35 in an attack; M. B., 28; J. O., 29; and H. H., 21. There is another contradiction: J. O. and H. H. showed an elevation of blood potassium following the administration of thyroid, while H. B. and M. B. showed a decrease of blood potassium after thyroid. It can hardly be said of any of my patients that they revealed a low blood potassium at any time. All the readings were high. Perhaps this bears some relation to the fact that none of them ever responded favorably to potassium. J. O. and H. H. showed in seizures what was for them low potassium levels, while H. B. and M. B. showed higher concentrations of serum potassium in the seizures than in the intervals. On December 17, 1941, J. O. had a blood potassium of 23.8 mg. per 100 cc. of serum while taking 1 grain of thyroid three times a day for several days. The blood specimen was not taken during a seizure. Talbott[3h] believes that the serum potassium must be lowered in attacks, yet H. B. and M. B. both showed slight rises in plasma potassium during seizures, another contradiction. The addition of 2 Gm. of potassium chloride to a dose of thyroid three times a day produced no improvement whatsoever over thyroid alone in my patients.

Aitken *et al.*[20] reported that the decrease in serum potassium was not a compensatory physiologic response to hyperglycemia but a concomitant migration of potassium from the blood into extravascular space, and that this was a normal phenomenon exaggerated in patients subject to periodic paralysis. Hildebrand and Kepler[3j] found that potassium even when administered intravenously brought no recovery of muscular power. They suggested that the exophthalmic goiter might in some way be responsible and concluded that paralysis was not due to a low serum potassium inasmuch as similarly low concentrations of the ion are seen without paralysis in diabetic patients taking insulin, among normal individuals when they are given ephedrine, in certain cases of hypercorticoadrenalism, and among patients treated with desoxycorticosterone acetate. It is important to see the physiologically corrective role of thyroid in its larger terms than in the more limited, mechanistic conception that it simply elevates the serum potassium. There is a diminished secretion of the ion on days of attacks,[3h,7] and, consequently, while its concentration in the serum is lowered, there is no real loss of potassium from the body. Thyroid evidently alters the balance of the ion's concentration in the extravascular spaces and the blood. With recovery from a seizure, there is usually a rise in the serum potassium followed by an increase in its excretion.[23,25] This process is probably accelerated by thyroid substance. A question might be raised as to why patients responded

glycogenolysis—i.e., the transformation of glycogen into glucose and lactic acid. Adrenalin raises the blood sugar and insulin lowers it. While some investigators found that seizures could be induced by adrenalin,[3h,42] presumably by lowering serum potassium,[21b,c,d] others[42] could not provoke attacks with adrenalin. None of my patients responded with paralysis to its injection. Thyroid creates an over-reactivity to adrenalin,[2b] probably by sensitizing sympathetic nerve endings in the liver, so that they respond overactively to normal amounts of adrenalin. Thyroxin, in fact, stimulates excessive adrenalin secretion. It is difficult to see how, if this is true, adrenalin could have had an adverse effect on my patients, since they responded so profitably to thyroid. It would appear that adrenalin exercises its paralytic effect only in those cases in which there has developed a degree of hyperthyroidism. In those patients who have not compensated with overactivity of the thyroid, adrenalin does not seem to provoke seizures.

Sodium Chloride and Periodic Paralysis

Potassium and sodium appear to play contrary roles in regulating thyroid function. Potassium aggravates while sodium exerts a beneficial effect upon experimental hyperthyroidism.[43] There may even be some danger in the persistent administration of potassium in cases of periodic paralysis in view of the spontaneous tendency to develop exophthalmic goiter. During the seizure there is an oliguria[3h] and a decrease in urinary excretion of sodium chloride. After the attack salt excretion increases.[2h,25] At no time is there a change in the serum concentration of sodium chloride.[3i,7,25] Thyroid substance promotes diuresis by mobilizing the water and salt of the tissues.[3f] It is questionable whether or not this physiologic change in water and sodium chloride relations has any therapeutic effect.

The Vagus and Periodic Paralysis

Pudenz *et al.*[7] found that mecholyl (acetyl-beta-methylcholine chloride) and doryl (carbaminoylcholine chloride), related to acetylcholine, produced a recovery from attacks without a rise in serum potassium, while Holmes[44] reported a rise in plasma potassium after their administration. Zabriskie and Frantz[4] discovered no helpful response to acetylcholine. In my patients prostigmine, mecholyl, doryl, and acetylcholine had no beneficial effect. Stewart *et al.*[41] found that the activity of serum choline-esterase throughout showed no deviation from the normal.

While the seizure of periodic paralysis resembles in many ways an attack of acute thyroid failure, it may, like the latter, be compared to a vasovagal attack in the excessive appetite prior to the spell; in the perspiration; in the tendency for seizures to appear at night, when the vagus is especially active (R. Schmidt: In der Nacht wacht der Vagus auf"); and in the bradycardia and hypotension. Pudenz *et al.*[7] reported that the slow pulse during a seizure disappeared after the administration of atropine. Stoll and Nisnewitz[45] noted the abolition of an electrocardiographic auriculoventricular conduction defect and the tendency of the T-waves to return to normal after the administration of atropine sulfate. They interpreted this as an indication of vagotonia during the seizure.

Thyroid increases the oxygen consumption of the vagus and stimulates it,[3f] with the probable release of acetylcholine. Zabriskie and Frantz[4] reported a patient who thought that a heavy meal at night was harmful. If he ate breakfast while recovering from an attack of any severity, the paralysis might return. This could conceivably be due to a muscular vagasthenia, while most of the available acetylcholine is being used in the digestive process. Under this hypothesis there is no denial of the existence of a vagotonia but a conception of its visceral concentration on the function of the heart and gastrointestines to the neglect of voluntary muscle. In this scheme thyroid would simply shift the stimulus of the vagus hormone to paralyzed striated muscle.

Blood Cholesterol and Periodic Paralysis

In hypothyroidism the blood cholesterol is elevated,[3f,8,46] while in hyperthyroidism it is diminished.[3f,46,47] Since normally the pancreas saponifies fat through its steapsin and since this function is inhibited by thyroid, there is in hyperthyroidism a loss of fat in the stools. The opposite is true in hypothyroidism. In the latter there is a decrease in blood fat and in the production of milk and fat,[48] while in hyperthyroidism blood fat increases[49] as the fat deposits in muscle diminish.[3f] If the seizure of periodic paralysis is a state of acute thyroid failure, the blood cholesterol ought to be increased during the attack. It is important to study the blood cholesterol in the life history of periodic paralysis, particularly when it is recalled that as one gets older the blood cholesterol increases.[46] This may have some especial relevance for periodic paralysis which tends to improve with age and disappear in the forties.

Sleep and Periodic Paralysis

Periodic paralysis often occurs during sleep. The deep reflexes which are lost in the seizure are always absent in the sleep of normal individuals.[50] Periodic paralysis is related to narcolepsy and cataplexy.[1,51] All three conditions may

(600 to 800 Gm. of meat) no attacks occurred. In one of my patients, H. H., such a diet reduced the intensity and frequency of seizures. Meat contains large quantities of potassium and phosphorus. It may be that these constituents are in some measure the therapeutic agents. When my patients were placed on a continuously high meat diet in addition to thyroid substance just before seizures, no greater clinical benefit was observed. A preference was indicated for thyroid alone. The use of a high protein diet may become necessary in order to spare body protein, which is essential to the resynthesis of muscle phosphocreatine. The latter is rapidly metabolized in thyrotoxicosis[31b] or with the administration of thyroid substance.

Thyroid, the great oxidizer,[35] increases urea output and total urinary nitrogen excretion.[36] In thyrotoxicosis there is a marked elimination of creatinine[37] and creatine[31b] in the urine. Holtzapple,[38] as early as 1905, described the worst sufferers from periodic paralysis as those in whom there is the most marked diminution in the average daily output of urea in the urine. Along with a low creatine content of muscle in periodic paralysis,[4,39] there is a persistent creatinuria during attacks and throughout the periods of well-being.[7,25] Creatine is excreted in amounts up to 0.65 Gm. in twenty-four hours. There is a highly variable daily excretion of creatinine ranging from 0.78 to 2.13 Gm. in twenty-four hours and no constant relationship of these abnormalities to attacks. The creatine and creatinine in the blood are always within normal limits.[7] There is an increase in the total protein of the blood in an attack[3h] with a return to normal in the interval,[34] again the suggestion of thyroid failure. But here is still another contradiction: there is an elevated blood protein during seizures, yet a high protein diet may limit attacks.

Now, if thyroid or thyrotoxicosis fosters the disintegration and excretion of body protein,[3f,31b] it is possible that patients develop a compensatory hyperthyroidism in order to lower blood protein and to increase the products of its disintegration in the urine and stools. The use of thyroid as medication may very well prevent the organism's having to enlarge internal thyroid function. Another observation that suggests a temporary failure in thyroid function in the seizure of periodic paralysis is the low level of protein metabolism in hypothyroidism. In both, the nitrogenous exchanges in the urine are low. Total urinary nitrogen has been found as low as 2 Gm. in twenty-four hours in hypothyroidism.[3f] In both, the blood protein is high. In hyperthyroidism or following the administration of thyroid substance the protein constituents of the blood are reduced.[3f] There is an accumulation of total blood protein in what appears to be a state of acute thyroid failure, the seizure of periodic paralysis. The ingestion of thyroid substance breaks down this protein and in the process increases the level of blood potassium and phosphorus, which are component parts of protein. However, it is probable, in view of the parallel established between the metabolic level and the blood potassium level, the metabolic level and the blood protein level, that some other factor in the oxidation of protein plays a therapeutic role in addition to the potassium and phosphorus contained in it. In this connection it would appear that more attention should be paid experimentally to the use of phosphates in the therapeutics of the attack.

Phosphates and Periodic Paralysis

Phosphate in the serum and urine[3h,40] parallels the concentration of potassium: in the plasma, it is low in the attack and normal in the interval; in the urine, it is decreased in the seizure and increased after it. Stewart *et al.*[41] found the serum potassium to be 3.0 mg. per 100 cc. (low normal) in paralysis, becoming 4.8 mg. (normal) after recovery and 5.2 mg. (normal) in a free interval. Ferrebee *et al.*[25] found a decrease in urinary excretion of inorganic phosphate in attacks with no change in plasma inorganic phosphate. This was followed in recovery by an increase in inorganic phosphate excretion without change in the serum inorganic phosphate. Milhorat and Toscani[40] reported the balance of phosphorus to be consistently negative for forty-two days in an interval free from seizures. They thought the origin of the phosphorus was the muscles rather than the bones. Sizable quantities of phosphorus were excreted, even though large amounts of it were ingested. In thyrotoxicosis, phosphate excretion is greatly increased, diminishing markedly after total thyroidectomy.[3f] In the course of an attack precipitated by adrenalin and insulin, potassium and phosphorus are withdrawn from the blood,[21a] and therefore from the urine, to be stored temporarily in the liver and muscle[3f,b] until sufficient thyroid is mobilized to return potassium and phosphorus to the blood and urine and relieve the seizure.

Adrenalin and Periodic Paralysis

Any procedure that increases the adrenalin content of the body fluid may induce attacks[3h]—a meal high in carbohydrate, strenuous exercise, thyrotoxicosis. Talbott[3h] claims that an injection of adrenalin decreases the concentration of serum potassium, that in fact insulin exercises its paralytic effect through the stimulation of adrenalin secretion. Hertzler,[31b] on the other hand, remarks that insulin inhibits adrenalin

periodic paralysis.[3h] It has been particularly observed that there are similarities between periodic paralysis and myasthenia gravis and that the pathogenesis of the muscle weakness in each condition may be related.[3h,5,13,44,57] Only a very few similarities need be mentioned here: the tendency to develop exophthalmic goiter; the creatinuria; the relief of weakness by potassium. It has been demonstrated in myasthenia gravis that there is a retention of potassium in muscle substance during periods of weakness.[58] In the seizure of periodic paralysis also there is in all probability a shift of potassium from the serum to muscle. In view of the close relationship between the two disorders, thyroid substance must be given extensive tests in the treatment of myasthenia gravis. In still another related muscular disorder, myotonia congenita, Weiss and Kennedy[59] reported the beneficial effect of the administration of thyroid substance. Poucher and Wade[60] found the thyroid therapy of myotonia congenita ineffectual in two adults, helpful in a child, and giving complete relief to an infant. In H. H., thyroid substance removed not only his seizures but also his myotonia.

The Relief of Migraine in Periodic Paralysis by Thyroid Substance

Periodic paralysis and migraine are related.[3h,28,51c,61] The regulated use of thyroid extract may relieve migrainous headaches in those patients whose metabolic rates are below 20 per cent particularly, if their attacks are associated with fatigue or strain.[61] Migraine, like periodic paralysis, is not an illness with a single cause and cure. Both are symptom-complexes in which several pathophysiologic mechanisms bring about a final common process.[3h,61] Both are in a measure dependent upon hereditary tendencies. Both show autonomic lability. The ideal treatment for both must be variable and individualized. Maclachlan[51c] points out that there is a disturbance of gastric function in both—an achylia gastrica and deficient starch digestion—paralysis of muscles may occur in the two conditions, and bulimia is a common precursor in both. Carbohydrates have from time to time been prohibited because of their alleged causative significance in migraine.[62] Similarly, an oversupply of carbohydrates will precipitate an attack of periodic paralysis.[21b,c]

In my series of 7 patients who are taking thyroid substance, 3 (S. O., J. O., and E. H.) have suffered from migraine for many years. Since E. H. has been taking 1/2 grain twice a day for the past year and a half, she has not had a migrainous attack. This is the longest free interval she has ever experienced. J. O. and S. O. take a grain of thyroid at the onset of a typical headache, and it disappears within five to thirty minutes, not to return.

If a relationship between migraine and periodic paralysis as pathophysiologic states is established by the foregoing evidence and by their response to thyroid, still another minor contradiction presents itself. While gynergen offers the most consistent relief in the general case of migraine, this drug tends to produce some weakness when given to J. O.

The clinical experience with oxygen in the relief of migraine suggests that retarded oxidation plays some part both in the development of the headache and in the paralytic process. The use of oxygen, much as in the treatment of migraine, deserves a trial in the seizure of periodic paralysis. In spite of the fact that several days are required for thyroid substance to increase oxidative processes, it is tempting to speculate on the possibility that thyroid is in some way and to some extent effective in these terms, especially when it is recalled that paralyzed muscle consumes less oxygen than unparalyzed muscle. Zabriskie and Frantz[4] observe that paralytic seizures are more frequent and more intense in cold weather and that there is greater freedom from attacks in summer. They produce local seizures by cooling the tissues and recovery by the application of heat. They find that the oxygen consumption of paralyzed muscle is decreased as compared with unparalyzed muscle, although even the latter consumes less oxygen than a normal control. Thyroid substance increases the oxygen consumption of tissues by 25 per cent[35,63] and at the same time raises the level of body heat, both of which may be factors in preventing seizures or promoting recovery from them. Even though other experience[3f] teaches us that oxidative processes do not alter quickly in response to thyroid, it is still inviting to consider the possibility (in view of the alterations in metabolic rate seen in attacks) that oxygen consumption is depressed or at least shows variations during seizures. It appears unlikely, however, that this is the mechanism by which thyroid substance is symptomatically effective, inasmuch as it takes five or six days[3f] for oxidative processes to increase after administration of the gland substance, while recovery takes place within some minutes. Taken orally, the drug produces recovery from an attack in ten to thirty minutes.

All my patients observed that whereas prior to the regular use of thyroid they were subject to frequent seizures in cold weather, they could now withstand very low temperatures without sensations of weakness. Furthermore, a tendency for the hands and feet to grow cold was gone. A susceptibility to upper respiratory in-

be incited by emotion. They are characterized by atonicity and flaccidity. Reflex activity is lost in narcolepsy,[51a] and there is a temporary disturbance in the electrical reactions.[51c] A relative lymphocytosis characterizes periodic paralysis,[51b] and a similar blood picture has been found in narcolepsy[52] and cataplexy.[51a] It seems plausible that with a burst of emotion there is adrenalin release in the cataplectic or narcoleptic and a lowering in serum potassium with precipitation of a seizure. Studies of blood potassium in these conditions may be revealing. I have made a number of observations—insufficient, however, to bear statistical scrutiny—that there is a tendency among *hypothyroid* individuals to show under emotion, especially sudden laughter, cataplectic helplessness. Sleep paralysis[50] resembles cataplexy except that the seizure appears nocturnally instead of diurnally and is not precipitated by emotion. Furthermore, the attack occurs during the period of falling asleep or of awakening. As in periodic paralysis, the patient, although quite conscious, is unable to move his limbs and often feels intensely anxious. A touch quickly dispels the attack. The appearance of the paralysis on waking or falling asleep, when bodily function and metabolism are being altered, suggests a relation to thyroid imbalance.

The Adrenal Cortex and Periodic Paralysis

Mamou and Hadjouj[3e] report the relief of periodic paralysis by suprarenal extract and radiation of the thyroid. It is not clear in what degree the adrenal extract was the therapeutic agent, but if it played a helpful role at all, this simply adds another contradiction, since the suprarenal cortical hormone lowers plasma potassium,[3i] presumably by restoring a normal balance between intracellular and extracellular potassium.[22] The administration of 10 to 40 cc. of adrenal cortical extract and 90 per cent glucose have produced attacks.[3j] If the adrenal cortex played any precipitating role, it is in sharp contrast to the therapeutic effect of suprarenal extract in the hands of Mamou and Hadjouj.[3e] Talbott[3h] has outlined the similarity between Addison's disease following excessive assimilation of desoxycorticosterone acetate and the seizure of periodic paralysis: (*a*) decreased concentration of serum potassium and phosphate, (*b*) improvement in symptoms following potassium ingestion, (*c*) increase in the volume of plasma and interstitial fluid, and (*d*) acute cardiac dilatation. There is a disturbance of carbohydrate metabolism in Addison's disease, in thyrotoxicosis,[3h] and in periodic paralysis. A retarded excretion of potassium by the kidneys in failing adrenal function insures a high level of potassium in the plasma which prevents paralysis. After overdosing with desoxycorticosterone acetate in treatment there follows increased excretion of potassium with a drop in its blood level and paralysis.[3h] In hypothyroidism, as the stimulating power on the adrenals by the inadequate thyroid is reduced and as the inhibitory power of the pancreas on the adrenals is increased, adrenal function diminishes.[3f] Is it not possible then that the seizure of periodic paralysis is to some extent related to an adrenal insufficiency? This concept receives some slight reinforcement from the observation that in Addison's disease as in the seizure of periodic paralysis there is a direct correlation between the height of the electrocardiographic T-wave and the level of serum potassium.[53]

The Electrocardiogram and Periodic Paralysis

Study of the electrocardiogram in the seizure of periodic paralysis reveals a defect in the propagation of the excitation wave,[41] a marked impairment in auriculoventricular conduction, and flattening of the T-wave.[45] In uremia and Addison's disease there is a direct correlation between the height of the T-wave and the level of serum potassium.[53] Furthermore, with the intravenous injection of potassium chloride in dogs the first electrocardiographic change is an increase in the height of the T-wave.[54] As part of a program to verify experimentally the effect of thyroid in periodic paralysis a study must be made of the changes in the electrocardiogram prior to, during, and following the administration of thyroid substance in the course of a seizure.

Myasthenia Gravis, Myotonia Congenita, and Periodic Paralysis

In noting the relationship of myotonia congenita, myotonia atrophica, paramyotonia congenita, progressive muscular dystrophy, Adie's syndrome, myasthenia gravis, and periodic paralysis, one is tempted to evaluate thyroid in all. J. O., H. H., and E. H., suffered from muscular dystrophy in addition to periodic paralysis. H. H. also complained of and under clinical examination showed typical myotonia. Holtzapple[38] described a family in which there were several cases of periodic paralysis and muscular dystrophy. Oppenheim and Bernhardt[55] called attention to the connection between these diseases. Talbott[3h] and Sanders[56] discussed the development of muscular atrophy in patients with periodic paralysis. It has been observed[3h] that there is a higher incidence of dystrophic and atrophic change in familial periodic paralysis than in the nonfamilial variety. Myotonia too has been described accompanying

5. There is a familial variety of periodic paralysis without exophthalmic goiter which responds to thyroid and not to potassium, and a sporadic type of periodic paralysis which may or may not be accompanied by exophthalmic goiter which responds to potassium, to removal, or to irradiation of the thyroid gland and is aggravated by thyroid substance.

6. If the seizure represents thyroid failure, there may be compensatory anterior pituitary oversecretion which produces temporary exophthalmos and possibly even generalized muscle weakness.

7. Adrenalin appears to exercise its paralytic effect only in those cases in which there has developed a degree of hyperthyroidism. In those patients who have not compensated with overactivity of the thyroid, adrenalin does not seem to provoke seizures.

8. It is possible that the seizure of periodic paralysis is to some extent related to an adrenal insufficiency.

9. A high protein diet may reduce the intensity and frequency of seizures.

10. Thyroid substance prevented the appearance or relieved attacks of migraine in three patients with periodic paralysis.

11. Two patients made a favorable response to thiamine chloride.

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fection was tremendously reduced. A change noted by all 7 patients was that they no longer seemed to perspire so freely as they did before taking thyroid nor did their hands ever get cold and clammy. It will be recalled that perspiration and cold, moist hands may be precursors of the seizure or in themselves evidence of an abortive attack. While they were taking thyroid, the patients noted a marked improvement in their capacity to work and be active without developing mild seizures.

The Favorable Response of Periodic Paralysis to Thiamine Chloride

Two patients, D. L. (female, aged 23) and H. B., reported improvement indicated by considerable lessening in frequency and intensity of seizures while taking thiamine chloride orally, 5 mg. twice a day. I was unable to verify their report objectively. D. L. lives in another city, and H. B. is inaccessible out of his own inertia. Palmer[64] has reported that 65 per cent of 60 patients with migraine were completely relieved during treatment with vitamin B_1 supplemented by vitamin B complex. He recommends vitamin B therapy on the hypothesis that a metabolic disturbance produces a general toxemia or enzyme deficiency. In view of the relationship between migraine and periodic paralysis, treatment with thiamine chloride might be recommended for the latter on the same hypothesis. Thyroid substance increases the elimination of creatinine in the urine.[3f] Co-carboxylase, the active form of vitamin B_1 in the tissues, produces a decrease in creatinine excretion.[65] This would appear to be another of those contradictions in the pathophysiology of periodic paralysis. It is worth recalling at this point that H. B., who responded favorably to thiamine chloride treatment, failed to profit very much from thyroid administration. Vitamin B_1 is closely related to oxidative processes, and the amount needed seems to be determined by caloric intake. It plays an important role in carbohydrate metabolism[65] which is disturbed in periodic paralysis. Still another contradiction becomes apparent when it is recalled that thiamine chloride increases insulin hypoglycemia,[66] while thyroid substance inhibits insulin secretion and raises the blood sugar.[3f,31b]

Summary and Conclusions

1. The contradictory findings in the pathophysiology of periodic paralysis are posed so that their frequent re-examination, correction, and ultimate synthesis will produce some new clarification and a new point of departure.

2. Thyroid substance neutralizes or prevents the onset of the seizure of periodic paralysis.

3. Thyroid substance may exert its therapeutic influence by:

(*a*) Replacement in a paralytic seizure, if the seizure is an expression of recurrent secretory thyroid failure.

(*b*) Altering the physiology of the intra- and extracellular potassium and phosphate and returning them to the blood and urine from the liver and muscle.

(*c*) Inhibiting insulin secretion, which tends to provoke paralysis.

(*d*) Diminishing the glycogen content of the liver and muscle, raising the blood sugar, and producing glycosuria.

(*e*) Decreasing the total protein of the blood and increasing the total urinary nitrogen excretion.

(*f*) Overcoming oliguria and decreased excretion of sodium chloride to promote mobilization of the water and salt of the tissues and diuresis.

(*g*) Shifting vagus hormone stimulation to the motor end plates.

(*h*) Increasing the oxygen consumption of the tissues and raising the level of body heat.

4. Since thyroid substance exercises a therapeutic role, it is likely that the hyperthyroidism that develops in the course of periodic paralysis is the organism's corresponding physiologic attempt to recover strength. The use of thyroid as medication may very well prevent goiter or the patient's having to enlarge internal thyroid secretion. The hyperthyroidism that develops in the course of periodic paralysis is not a factor in the pathogenesis of paralysis so much as it is a compensatory design on the part of the organism to alter the physiology of the intra- and extracellular potassium and in this sense an attempt to relieve the seizure. Thyroid exercises a governing or balancing role in the extra- and intravascular, in the extra- and intracellular relations of the potassium ion. In those instances in which thyroid is most effective, the direction given by the addition of the glandular substance is toward diluting the extravascular and concentrating the intravascular ionic content. Apparently the administration of potassium alone is not nearly so effective in the absence of the governing or directing influence of thyroid, which transfers potassium from the liver and muscle to the serum. Since there is not an actual potassium deficiency in the body of the periodically paralytic but only an unphysiologic distribution correctible by thyroid and since potassium may aggravate hyperthyroidism, thyroid substance should be used in preference to potassium as a therapeutic agent wherever paralysis is uncomplicated by incipient or full-blown goiter.

bones in rats, and the statement by Cope *et al.*[14] that adrenal cortical extract and desoxycorticosterone acetate lower the high blood serum amylase found in adrenal cortical insufficiency. Hartman's recent review[6] mentions metabolic effects, such as the decrease in the metabolism of kidney and liver slices, the decrease in the deamination of amino acids by the kidney, and the decrease in the oxidation of pyruvate, succinate, and citrate by both kidney and liver, all in adrenalectomized animals.

8. The immunologic effect or factor is referred to by Perla and Marmorsten[3] in the treatment of pneumonia and other severe infections, by Cope and Kapnick[14] in the delayed, transient response to vaccinia virus after adrenalectomy, and by Ettelson[6], who protected adrenalectomized rats against lethal doses of typhoid vaccine by adrenal cortex extracts but not by desoxycorticosterone acetate.

Enough has been said here to make it clear that these widespread physiologic effects of adrenal preparations are rarely single in action, and to indicate that these factors may represent the potencies of single hormones or groups of hormones of the adrenal, modified often by chemical fractionation, and, in almost all cases, as yet imperfectly understood.

Shock

The use of desoxycorticosterone acetate and adrenal cortical extracts in shock has received some belated clinical attention since the work of Perla and Marmorsten[3] although Swingle, Pfiffner, *et al.*[15] had early pointed out the similarities of adrenal insufficiency and shock, Dietrich[16] had described edema of the adrenal cortex in protracted infections and degenerative changes in the lipoids in different sections of the gland, Aschoff[17] had noted similar changes in diphtheria, scarlet fever, and septic infections, and Weil and Browne[18] had found a maximum excretion of cortin in the urine between the third and fifth day postoperatively, showing the necessity for increased adrenal cortical hormones in severe infections and shock.

Unfortunately, most surgical operations do not allow as thorough a preoperative study, particularly of electrolyte metabolism, as the newer knowledge of adrenal cortex physiology seems to make desirable. For this reason, it has been thought worth while to subdivide the vague entity known as "shock" into certain possible causative factors and to consider the therapy of these in turn.

Both "medical" and "surgical" shock, the latter subdivided into primary and secondary, are spoken of in the literature, but it seems obvious that a causative classification will be more fruitful. Scudder[19] attempts a more thorough analysis on the basis of cell volume, specific gravity of whole blood, specific gravity of plasma, and the percentage of plasma proteins, but even this neglects too many theoretic factors. In the absence of thorough pre- and postoperative studies of shock, the causative factors appear to be:

1. Disturbances in membrane permeability and water balance; the common dehydration, guarded against by surgeons by intravenous saline, etc., but not checked by plasma protein determinations and cell volume studies; and the rarer form of water intoxication, which Swingle[20] was able to prevent in adrenalectomized animals by priming doses of desoxycorticosterone acetate. These are not limited to effects on renal function, since shifts of water into skeletal muscle, erythrocytes, and other tissues have been demonstrated.

2. Abnormal concentrations of the electrolytes of the blood plasma, interstitial fluid, and intracellular fluid, so that study of the sodium, chloride, potassium, calcium, magnesium, carbonate, and phosphate ions becomes important. Thus the role of potassium in the production of muscular paralysis and electrocardiographic changes has only recently been demonstrated.[19]

3. Hypoglycemic shock, which could be checked only by frequent glucose estimations pre- and postoperatively.

4. Toxemic shock, such as that due to toxins or toxic products from the damaged tissues, was stressed by Cannon[21] and McIver and Haggart[22] but discounted by Johnson and Blalock.[23] The latter say: "Our first conclusion is that a toxemia due to the elaboration of histamine or any other depressor substance manufactured in the traumatized area plays no part in the syndrome of traumatic shock." Thaler's[25] observation that blood potassium rises not only in hemorrhage but also in histamine shock raises the question of whether hyperpotassemia may not be the factor responsible for shock in histamine poisoning. While there are definite cases of shock due to toxins or poisons—as, for instance, snake-venom poisoning—the mechanism is still obscure.

5. Neurogenic shock of various types has been discussed by Desbuquois,[26] by Malcolm,[27] by Meltzer,[28] and by Janeway and Jackson,[29] among others. But since vasoconstriction and stimulation of the sympathetic nervous system both produce hyperpotassemia, the question of the primary factor in shock still remains unsolved.

6. Specific loss of the "cortin" factor, due perhaps to adrenal edema or hemorrhage, may be of interest in the Waterhouse-Friderichsen syndrome, and perhaps in the type of overwhelming infections which produce sudden collapse and death.

THE CLINICAL USE OF ADRENAL CORTICAL HORMONES

Preliminary Report

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RECENT work on the relation of adrenal cortical hormones to surgical and medical shock and to severe infections has developed a diversity of opinions. In this paper, we shall attempt to assemble some of the available data, to relate our own experiences with a group of cases, and to try to present definite indications and contraindications for the use of these hormones.

Historical Data

In 1934, we[1] did some experimental work designed to test the effect of injections of adrenal cortex extract on resistance to bacterial infection, which we later reported before the Clinical Society of the Bronx Hospital.

Adrenalectomized rats were sustained in good health by 1-cc. injections of adrenal cortex extract; another group of normal rats receiving 1-cc. injections of adrenal cortex daily were able to withstand intraperitoneal injection of virulent streptococci, in doses large enough to kill the control animals. Other investigators,[2] working with guinea pigs, found that injections of adrenal cortex extract conferred an increased resistance to bacterial toxins on *normal* guinea pigs. These observations stimulated our interest in the effect of cortical hormones on resistance to severe infections and to surgical shock in human beings. The effect of eschatin and later of desoxycorticosterone acetate† has been tested in a number of surgical and medical cases during the last six years. The recent reports of Perla and Marmorsten[3] have stimulated interest in the subject to such an extent that our results seem worth recording.

Physiology

The adrenal cortex manufactures a large number of steroids of similar chemical composition but of markedly different physiologic behavior. Most recent workers[4,5,6] agree on the following classification:

1. The sodium factor, which is primarily important in maintaining the electrolyte equilibrium of sodium, chloride, potassium, and the water balance of the body, may be identical with the synthetic steroid, desoxycorticosterone acetate, although Hartman[6] considers them two distinct adrenal substances. This has only a weak glycotropic (anti-insulin, diabeticogenic, or blood-sugar-raising effect—Ferrebee[4]), a weak andromimetic (simulating androgenic, increasing the size of the male secondary sexual structures—Hooker and Collins[5]), and no anti-infectious effect (Ettelson[6a]).

2. The cortin factor, which can maintain adrenalectomized animals in good condition even at low plasma sodium levels, may be identical with corticosterone and dehydrocorticosterone, which are found in higher concentrations in adrenal cortical extract, eschatin, etc. The pure compounds have not thus far been available in sufficient quantities to permit adequate clinical tests.

3. The carbohydrate metabolism, or glycotropic, diabeticogenic factor, is still in dispute. Loeb[7] speaks of the decrease in sensitivity to insulin in Addison's disease and Hartman[8] of the gluconeogenesis occurring with injections of adrenal cortical extracts. Large doses of adrenal extract, corticosterone, dehydrocorticosterone, or Kendall's compound E raise the liver glycogen markedly above normal (Long, Katzen, and Fry[9]). The glycotropic effect of desoxycorticosterone acetate is still in dispute.

4. The gonadal, or sex factors, found in small concentration in desoxycorticosterone acetate and in larger concentrations in certain cortical extracts, are stressed by Looney.[11]

5. The pigment metabolism factor, of which practically nothing is known except the clinical association with Addison's disease, although disappearance of pigmentation has been reported in some cases after treatment with adrenal extract.

6. The lactation factor (Brownell[10]), which affects the metabolism of lactating animals, has been termed cortilactin, and Hartman (e.c.) has prepared it by iso-electric precipitation.

7. Polyglandular factors—i.e., the effects of stimulation or inhibition of other glands in the endocrine chain, such as the anterior pituitary, the posterior pituitary, the thyroid, parathyroid, and pancreas—have only begun to receive attention. There are Looney's[11] reference to the effect on pituitary function, Marine's[12] reference to the connection with exophthalmic goiter, Watson's[13] claim that adrenal cortical extract causes a reduction of the phosphatase of the

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* Deceased.

† The desoxycorticosterone acetate (cortate) was kindly supplied by Dr. Max Gilbert, of the Schering Corporation. It will hereafter be designated either with its full chemical name or as "cortate," its proprietary pharmaceutic name.

showed a significant change (from 135 to 200). Thus the only patient in whom really significant changes occurred was E. K., in whom the clinical symptoms of weakness, emaciation, and dizziness had already pointed to hypo-adrenalism as one of a number of glandular hypofunctions. In E. K., the administration of cortate resulted in (1) slight hemoconcentration and rise in serum chlorides, (2) increase of blood cholesterol to normal limits, and (3) a diabetic type of blood sugar tolerance curve after cortate. Basal metabolic rates could be tested before and after in only 2 patients, one of whom (N. B.) showed a moderate increase (from minus 37 to minus 15). Case 9 (A. S.), receiving the largest dosage—20 mg. daily for seven days—showed a fall of carbon dioxide combining power from 50.4 per cent to 40.9 per cent, with an increase in blood cholesterol from 175 to 232 mg.

Obviously much further study, in larger series, will be necessary before any definite indications for the use of cortate in therapy can be drawn.

Suggestions for therapy with desoxycorticosterone acetate (and adrenal cortical extract, where available) may be made as follows:

1. *Hypo-adrenal* syndromes in which a trial of cortate therapy is worth while may include not only the clearcut Addison's disease but borderline cases, in which weakness, loss of weight, hypotension, and secondary glandular hypofunctions are the prominent symptoms. The study of the effect of cortate in adrenal hemorrhage (Waterhouse-Friderichsen syndrome) and in infantile marasmus seems well justified. The use of cortate in pemphigus, psoriasis, and allergic dermatitis has been reviewed by Hartman.[8]

2. *Hypoglycemic* syndromes, including the rare functional hyperinsulinism, may be benefited by cortate therapy, if results similar to those in 2 of our cases (E. K. and F. L.) can be produced. The glycotropic effect of cortate has been in much dispute; in these 2 cases, there seems some demonstration of this effect.

3. *Hypothyroid* syndromes may be affected in some poorly understood fashion. In one case (E. K.), the blood cholesterol rose from 135 to 200; in another (N. B.), the basal metabolic rate rose from minus 37 to minus 15 per cent.

4. *Medical shock* syndromes should be studied more carefully before and after cortate therapy, so that some quantitative expressions of shifts in water balance and electrolyte concentrations may be related to clinical results.

5. *Disturbances of water metabolism and electrolyte concentration*, where they would be benefited by the prevention of loss of water, sodium, and chloride through the urine, deserve a trial of cortate therapy. The hypochloremia in pneumonia[30] and in tuberculosis, heart disease, and carcinoma of the lung[31] does not seem to be affected by cortate therapy. Such conditions as alimentary toxicosis of infancy, with diarrhea and dehydration, as well as ulcerative colitis and perhaps dysentery and typhoid, may be investigated, although the principal route for loss of salt and water is intestinal and not renal. In such instances, investigation should be made in order to judge whether or not cortate therapy may result in an increased intestinal resorption of water and salts. Hyperemesis gravidarum[8] seems to be definitely benefited.

6. *Polyglandular syndromes* are probably affected by cortate therapy in many ways. Reference to the adrenal, glycolytic, and thyroid effects has been made. It seems probable that the gonads[5,32,11,33,34,35] are notably influenced. Use of cortate as a preventive for shock in the treatment of paresis by malaria is mentioned by Savitsky.[36]

The *dosages* of cortate used in this study ranged from 5 to 20 mg. at an injection, given for seven-day periods except for Case 3, which received only 3 mg. daily. Intramuscular injection proved least painful; no local or general reactions appeared in any case.

Dangers of adrenal cortical extract and desoxycorticosterone acetate therapy, as might be judged from the *physiologic* effects, are very real:

1. Overdosage of the *sodium factor* may be obviated by carefully watching the urinary volume, signs of edema, thirst, acceleration of the pulse, and rise in blood pressure. A secondary effect of a sudden rise in blood volume and consequent rapid increase in blood pressure is frequently cardiac embarrassment. This applies particularly to their use in the therapy of Addison's disease, in which the dosage must be very carefully adjusted on the basis of repeated electrolyte determinations in order to avoid undue hemoconcentration or hemodilution. It is our feeling that the use of desoxycorticosterone acetate and adrenal cortical extracts in shock and in diseases other than those primary in the adrenals will be attended with much less danger than their use in Addison's disease would lead one to predict. Dosages of 3 mg. of desoxycorticosterone acetate a day in Addison's disease are often enough to produce toxic changes, whereas larger doses have been used with relative harmlessness in other conditions (q.v.). It is our belief that just as normal human beings are much less sensitive to thyroid administration than are hypothyroid and myxedematous patients, so normal human beings will prove to be much less sensitive to adrenal cortical extracts and desoxycorticosterone acetate than are patients with Addison's disease. Thus, Thorn and Emerson,[37] giving 10 to 15-mg. doses of desoxycorticosterone acetate

Blood Chemical Changes Resulting from DOCA Therapy

Case No	Name	Age Yrs	Symptoms	Clinical Diagnosis	Dosage of DOCA	B.M.R. Before	B.M.R. After	(1) Serum Chlorides mg. per 100cc. Before	(1) Serum Chlorides mg. per 100cc. After	(2) Serum Protein Before	(2) Serum Protein After	(3) Blood Sugar mg. per 100cc. Before	(3) Blood Sugar mg. per 100cc. After	(4) Blood Co2 Combining Power Before	(4) Blood Co2 Combining Power After	(5) Blood Cholesterol mg. per 100cc. Before	(5) Blood Cholesterol mg. per 100cc. After
1	E.F.	53		Intestinal resection for tumors of cecum in Diabetic	20mg. pre-operative +5mg. 1st day +10 mg. 2nd day +10 mg. 3rd day			485	495	4.07	5.9	253	112				
2	P.S.	51		Appendectomy	20 mg. pre-operative +5mg. 1st day +5 mg. 2nd day			490	500	5.64	5.73	114	122				
3	E.C.	48	Weakness hypotension pigmentation	Addison's Disease	3 mg. q.d.	-5		459	546			69					
4	E.K.	27	Weakness amenorrhea	Hypo-ovarian	10 mg. ×7 days			480	508	5.94	6.50	58 106 104 66 63	105 142 129 97 92		51.3%	135	200
5	F.L.	24	Tachycardia Goitre	Hyper-thyroid	10mg. ×7 days	+37	+42	485	532	6.50	6.66	114.6 155 155 117 108	117 200 171 134 80			128.2	117.7
6	I.G.	21	Tachycardia weakness	Psycho-neurosis	10mg. ×7 days			480	510	6.18	6.76		84 119 112 97 93				160.8
7	M.B.	14		Gynecomastia	10 mg. ×7 days	-37	-15	530	425	6.63	6.39	102.6	103.1 156 129 120 117	52.2%	45.7%	200	206.2
8	E.S.	16		Hypothyroidism	10mg. ×7 days	-19		540	490	6.31	6.48	102 134 148 132 105	109	55%	66.4%	227	192
9	A.S.	14		Hypothyroidism	20mg. ×7 days			495	510	6.35	6.23	92 137 98 94 93	98 137 107 104 101	50.4%	40.9%	175	232

Table 1*

*"DOCA" is an abbreviation for desoxycorticosterone acetate (cordate).
Methods: (1) Whitehorn, (2) Micro-Kjeldahe, (3) Folin-Wu, (4) Van Slyke, (5) Knudsen and Bloor.

7. The immunologic factor is exemplified by anaphylactic and peptone shock, but there is a relation between the condition of the adrenals and the reticulo-endothelial system in which the ability of the body to resist bacterial toxins and foreign proteins seems affected.

The group of cases treated with injections of desoxycorticosterone acetate (cortate) is summarized in Table 1. An attempt was made to judge the effect of administration of seven daily injections of cortate by measurement, whenever possible before and after this trial period, of the basal metabolic rate, serum protein, serum chlorides, blood sugar tolerance, blood carbon dioxide combining power, and blood cholesterol.

The first two patients, E. F., and P. S., were surgical patients who were being prepared for operation. E. F. was a severe diabetic, and the necessity for concomitant insulin injections vitiates the fall in blood sugar, recorded as from 253 to 112. The increased serum protein demonstrates a hemoconcentration, in spite of what was deemed adequate hydration.

The third case was a probable Addison's disease, for which the patient, E. C., received a maintenance dose of 3 mg. daily. The fourth (E. K.), fifth (F. L.), sixth (I. G.), seventh (N. B.), and eighth (E. S.) cases have been under observation in our clinic for several years.

Dosages in these cases were all 10 mg. of cortate daily for seven injections. As can be seen from Table 1, dosages of cortate of this magnitude in those patients with approximately normally functioning adrenals seem to have no great effect. Four of the five (N. B. excepted) show some slight rise in serum chlorides. No consistent changes in the blood carbon dioxide combining power were shown. In only 2 cases (E. K. and F. L.) could the blood sugar tolerance be completely tested before and after. In both there resulted a striking increase in the height of the blood glucose from one-half to three hours after oral ingestion, as compared with the form of the blood sugar tolerance curve before injections of cortate. Of 4 patients whose blood cholesterol could be tested before and after cortate only E. K.

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REQUIREMENTS CHANGED FOR OBSTETRICIANS

A number of changes in the regulations and requirements of the American Board of Obstetrics and Gynecology became effective at the annual meeting of the Board on May 20, 1943. Several of these changes are designed to broaden the requirements for candidates in service. Examples are the allowance of a stipulated amount of credit toward special training requirements for men in service who are assigned to general surgical positions, special training allowances on a preceptorship basis for men assigned to obstetric or gynecologic duties in military hospitals and working under the supervision of Diplomates or recognized obstetrician-gynecologists, as well as credit toward the "time in practice" requirement of the Board to be allowed for time in military service.

The Board will no longer require a general rotating internship, but will now accept a one-year intern service, although the rotating internship is preferable.

Such services must be in institutions approved by the Council on Medical Education and Hospitals of the A.M.A. Lists of such institutions are published regularly in the Educational Number of the *Journal* of the A.M.A.

The privilege of reopening applications by candidates who have been declared ineligible has been extended to two years from date of filing the application, instead of one year.

The Board has ruled temporarily to excuse men in military service from the submission of case records at the stipulated examination times, thereby permitting them to proceed without further delay with the Board examinations. This does not obligate the Board, however, to waive the case record requirement for such candidates. Plans have been made to provide similarly for service men upon their eventual discharge from the armed forces and to permit the greater use of operations done while in residence or in civilian practice before the war.

The next Part I examination of the Board (written paper and submission of case records) will be held on Saturday afternoon, February 12, 1944, at a place convenient to the location of the candidate, whether he be in civilian or military life. Applications must be in the Office of the Secretary by November 15, 1943, ninety days in advance of the examination date. The time and place of the Spring, 1944 (Part II) examination will be announced later.

Prospective applicants or candidates in military service are urged to obtain from the Office of the Secretary, a copy of the "Record of Professional Assignments for Prospective Applicants for Certification by Specialty Boards" which will be supplied upon request. This record was compiled by the Advisory Board for Medical Specialties and is approved by the Offices of the Surgeons General, having been recommended to the Services in a circular letter, No. 76, from the War Department Army Service Forces, and referred to as the Medical Officers' Service Record. These will enable prospective applicants and candidates to keep an accurate record of work done while in military service and should be submitted with the candidate's application, so that the Credentials Committee may have this information available in reviewing the application.

Applications and Bulletins of detailed information regarding the Board requirements will be sent upon request to the Secretary's Office, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

RADIO PRESCRIPTIONS

"One deplorable aspect of life in America is reflected in the advice we get over the radio concerning a great variety of remedial agents. Those who act on these suggestions are the victims of fear," Arlie V. Bock, M.D., Boston, declares in *Hygeia, The Health Magazine*, for June.

"Because there are so many such victims, the makers of liver pills, cathartics, and aids for this and that ailment are able to make good financial dividends. We do not need to take drugs to keep healthy. . . . . When you have a cold or an acute upper respiratory infection, your best friend is early and sufficient bed care. . . . . Your bowels will move if you give them a chance, and of all things you do not need colon irrigations. Your liver has enormous capacity to look after itself, and your kidneys get all the flushing out they need if you are leading a reasonable type of life. . . . . In short, simple, intelligent, everyday hygiene is all that you need to be concerned about in all these respects.

When things begin to go wrong, get some needed rest, and when questions arise that you cannot answer, try to consult your doctor at once instead of worrying about dire possibilities. . . ."—*Nebraska State M. J.*

daily for five days to 4 normal subjects, found a striking retention of sodium and chloride and an increased potassium excretion, as measured by urinary findings. The blood serum sodium rose only from 139 to 141.9, the serum chlorides only from 100 to 106.1, and the serum potassium from 4.9 to 5.2 (all in milliequivalents per liter), despite a slight hemodilution. With dosages of 10 to 15 mg. daily, it is probable, therefore, that periods of treatment much longer than five days would be necessary for the urinary retention, etc., to be reflected in similar changes in the blood. Under this heading, we must also mention the dangers of hypopotassemia, as produced by injections of adrenal cortical extract[19] and in normal dogs by daily subcutaneous injections of 25 mg. desoxycorticosterone acetate by Ferrebee, Parker, Carnes, Gerity, Atchley, and Loeb.[38] The latter workers produced diabetes insipidus and attacks of profound muscular weakness and theorized that the desoxycorticosterone acetate, by increasing the renal excretion of potassium, lowers the serum potassium. However, doses of 25 mg. a day for a dog would be comparable to 100 to 150 mg. a day for a human being, and no one has proposed such doses. None of our cases has shown edema, anasarca, or cardiac embarrassment.

2. Overdosage of the *carbohydrate metabolism* factor has not been noted in the literature, but a constant supply of glucose and frequent carbohydrate tolerance tests are undoubtedly wise precautions. Hartman[8] noted that the liver glycogen could be raised well over the normal limits.

3. The reaction of such therapy on other glands has not been worked out in man as yet. In rats, Selye and Friedman[33] found doses of 10 mg. of cortate a day for twenty days necessary to produce atrophy of the immature testis, but Carnes, Ragan *et al.*[39] were unable to find consistent changes in any of the endocrine glands other than the adrenals, although they gave their rats large doses for prolonged periods. Selye and Friedman[40] also reported inhibition of the immature rat ovary with desoxycorticosterone acetate.

4. The danger of adrenal atrophy in normal mammals and man from injections of adrenal crotical extracts has been pointed out by Loeb,[7] Selye,[41] and Carnes, Ragan *et al.*[39] What Selye has termed "compensatory atrophy" is still in question as a pathologic entity. Certainly there is no evidence that therapeutic doses in man have ever produced anything but temporary inhibition, not a permanent atrophy. Thus Wells and Kendall[36] were unable to reproduce Selye's results, and reported no atrophy of the adrenals, but an increase in the thymus, with cortate therapy. However, a long follow-up period, in which serum electrolytes, carbohydrate tolerance, and liver and kidney function tests are made periodically, is a wise precaution when adrenal cortical extracts or desoxycorticosterone acetate are given to human beings for anything, including Addison's disease.

Summary

Adrenal cortical extracts and desoxycorticosterone acetate represent a new method of therapy, potentially useful in a large number of illnesses, but attended with such far-reaching physiologic effects that they should be employed only under careful control, especially of blood chemical findings.

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New York City

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form of hypertension is herein indicated; in man the vascular obstructive lesion is rarely in the main renal arteries but rather in the preglomerular vasa afferentia, while in the animal the renal arterioles escape the changes found in arterioles of the retina, skeletal muscles, etc. It is this difference also which makes unpromising the procedures designed to improve renal circulation in man by omental or muscle grafts to the decapsulated kidneys.[13,14]

Page produced hypertension in four to seven weeks by wrapping both kidneys in cellophane or silk and causing thereby an aseptic perinephritis. He pointed out that reno-omentopexy might ultimately result in a similar reaction in clinical cases. If only one kidney was so treated and the other removed, a malignant form of hypertension occurred. The work of Page and of Braun-Menendez and their collaborators confirmed the importance of renin, discovered by Tigerstedt and Bergmann, and the phenomenon of tachyphylaxis. Renin plus renin activator (preangiotonin), formed in the liver and found in serum or plasma, produces the pressor substance "angiotonin." (The South American investigators call this substance "hypertensin"). Renin is effective, therefore, only when injected intravenously. The effects of renin injected intravenously into a normal animal correspond with the hemodynamic state of the experimental hypertensive animal. The substance has been demonstrated in the renal vein and systemic blood of the hypertensive animal. It plays a role in maintenance of blood pressure in shock and hemorrhage. The crystallization of angiotonin picrate and oxalate has been reported by Page and Helmer. The use of an angiotonin destroyer (hypertensinase or angiotoninase) in the treatment of hypertension has been attempted clinically with antipressor renal extracts. The renal vein blood from an ischemic kidney contains much less hypertensinase than that from the normal kidney. Smith believes that the pressor substance causes hypertension by increased efferent arteriolar constriction with increase of the filtration fraction. Page states that infusion of angiotonin increases arterial pressure and decreases renal blood flow by efferent arteriolar vasoconstriction. It would thus seem that in essential hypertension altered function (pathologic physiology) precedes and is not the sequel of renal disease.

Goldblatt stated that constriction of the renal artery of one kidney resulted in elevation of the blood pressure which lasted weeks to months *but usually returned to a lower or to the original level in a month.** If the normal kidney was removed before this time, however, the hypertensive state persisted. Clinical interest of urologists in hypertension was aroused by Goldblatt's provocative work and writings. Numerous reports of cases and studies of groups of cases have come into the literature dealing with hypertension in patients with unilateral urologic lesions and their surgical treatment, including nephrectomy. These fall into several groups and require brief review.

Group 1. Cases of Hypertension Associated with Unilateral Lesion of Main Renal Artery

One of the first cases reported was that of Leadbetter and Burkland.[15] A Negro boy was known to have cardiac enlargement at the age of 6 months and hypertension at 3½ years. Urologic investigation revealed a small right ectopic pelvic kidney, a large normal left kidney. There was no evidence of infection, and there were no retinal changes. After two years' further observation, the pelvic kidney was removed. The blood pressure declined from levels of 180/115, 160/90 to 125/72, 96/70. The excised kidney weighed 50 Gm. (average normal, 100 Gm.) The pelvis was extrarenal. The parenchyma was normal. The renal artery was of small caliber, and at 1 centimeter from the hilum its lumen was reduced to a mere slit by a mass of smooth muscle. Intrinsic renal vessels were normal. Three years later the blood pressure was 108/58.[16] This is a perfect clinical instance of a unilateral "Goldblatt kidney" in which the blood pressure remained elevated in the presence of a normal opposite kidney and in which removal of the diseased kidney effected a lasting return of the blood pressure to normal figures.

Freeman and Hartley[17] reported a fatal case of hypertension in a man of 57, due to obstruction of the main renal artery of a solitary kidney by an atheromatous plaque. One kidney had been removed sixteen months earlier for damage by trauma. This situation corresponds to an experiment in which one kidney has been removed and the other kidney subjected to marked constriction of its renal artery.

Mulholland[18] cites Welty's 11 cases of renal artery thrombosis reported from the Philadelphia General Hospital.

Howard, Forbes, and Lipscomb[19] reported the case of a 5-year-old girl with hypertension and hemiparesis cured by removal of the left kidney, the renal artery of which presented a sacculated aneurism. Preoperative blood pressure was 200/140. Five months later it was 125/90 and 110/70.

In the case of Riggs and Satterthwaite[20] a man of 58 with blood pressure 260/140 died in coma.

* Wilson and Byrom found that constriction of one renal artery in the rat resulted in persistent hypertension. [Lancet 1: 136 (1939).]

INCIDENCE OF GROSS RENAL LESIONS IN CASES OF HYPERTENSION

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ARTERIAL hypertension may be defined as the elevation of both systolic and diastolic pressures above the generally recognized maximum norms, 120/75 up to the age of 15, and 140/90 or 150/100 for adults.

Hypertension is an objective symptom. It is known to accompany directly destructive lesions of the renal parenchyma such as diffuse glomerulonephritis, recurring and chronic infections, polycystic disease, certain toxemias, and indirectly destructive lesions (intraluminal pressure effects) occurring in obstructive uropathies, such as urethral and vesical neck obstructions of long standing or ureteral obstructions.

The regression, arrest, or progression of the hypertensive state in these instances is dependent presumably upon the qualitative and quantitative extent of the renal damage caused by the underlying disease and upon the possibility of reversal or arrest of the lesion. While the relationship of cause and effect was accepted clinically in these groups of cases, the fundamental underlying mechanism producing the hypertension was no more firmly established than in the larger and puzzling group of cases labeled as essential hypertension. Here the word "essential" indicated our lack of knowledge just as in "essential hematuria" or "essential gastrostaxis."

As to the pathologic anatomy of this group of diseases, left ventricular hypertrophy, arteriolosclerosis of the kidneys (especially of the vasa afferentia and vasa interlobulares) and, less regularly, of the other organs and viscera were regarded by Fishberg[1] as the important findings. The arteriolosclerosis was considered by him to be an exaggeration or premature development of the changes physiologic for aging. He also believed it to be the result rather than the cause of the hypertensive state. It was argued that the arteriolosclerosis was not sufficiently widespread to raise the general blood pressure by increasing peripheral resistance. Although he found the most advanced arteriolar changes in the kidneys, and in all cases of the 72 studied,* it seemed inconceivable to him that increased resistance in the small vascular territory of the kidneys should mechanically cause hypertension.

The theory of a pressor substance retained in the organism because of impaired or altered renal function, first advanced by Tigerstedt and Bergmann, also failed to meet the critical requirements, and Fishberg concluded that hypertension is due to widespread vasoconstriction, resulting in some instances from renal disease but most often not. Except for the occasional cases associated with adrenal tumors, pituitary basophilic adenoma, or plumbism, the cases of nonrenal hypertension were classed as essential—i.e., of unknown cause. Fishberg concluded that a nervous rather than a humoral mechanism was responsible and that constitutional hereditary factors predisposed.

The recently renewed efforts to solve the problems of causation, pathology, and altered physiology of essential hypertension in man stem from the experimental work of Harry Goldblatt,[2–5] the experimental and clinical observations of Irvine H. Page,[6–10] the physiologic studies of Homer W. Smith,[11,12] and of their respective collaborators. Many others have striven to confirm or extend their investigations. The relationship of renal arteriolar sclerosis to essential hypertension was the immediate question to be clarified. To simulate the decreased blood flow to the kidney ascribable to such a primary lesion, the Goldblatt clamp method of gently constricting the main renal arteries was devised. The *constriction of both main renal arteries*, simultaneously or seriatim, resulted in persistent hypertension (in dogs and monkeys) without obvious disturbance of renal function. If constriction was marked or complete, renal damage accompanied the hypertension and general arteriolar necrosis supervened, as in the malignant hypertension of man. Occasionally in dogs the development of collateral circulation to the kidneys resulted in a definite lowering of the elevated blood pressure. Renal ischemia thus produced, with adrenal cortex preserved, caused increased peripheral resistance either by a nervous or a humoral mechanism. In animal experiments the failure of various procedures upon the nervous system to modify the hypertension made a humoral mechanism the more probable. Goldblatt pointed out that in man such procedures might relax renal arterioles which had escaped fixed organic changes, whereas in the experimental animals the clamps precluded the possibility of improvement of renal circulation by such a response. A striking difference between the human form and this experimental

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* In three cases subsequently studied the arteriolar lesions seemed compatible with those normal for the age of the individual.

noted. In 1937 Longcope[31] reported 22 cases, in 12 of which hypertension developed as the result of arteriolar disease.

Weiss and Parker,[32] and Crabtree[33] have made substantial contributions to the study of pyelonephritis in its life history, development, and relationship to hypertension.

Braasch and Jacobson,[34] in a study of 180 cases of bilateral pyelonephritis and a control group, found the incidence of hypertension about the same in patients of 50 years or older, whereas the incidence was higher in the younger groups with pyelonephritis. When renal function was impaired, hypertension was twice as frequent as in the group with normal renal function. Butler[35] observed 15 cases in children, 8 of whom had hypertension. In 2 cases the pyelonephritis was unilateral and nephrectomy resulted in lowering of the blood pressure. In the 42-year-old patient of Barker and Walters[36] a right ureteral calculus had been removed for infection and obstruction in 1931. Hydronephrotic atrophy with hypertension 200/140 was found in 1937, the result of ureteral stricture at the site of the previous ureterolithotomy. The kidney was removed. It weighed 48 Gm. and was nodular because of chronic inflammation and arteriolar sclerosis. Blood pressure two years later was 130/90. In McIntyre's[37] case of a man of 34 with blood pressure 180/104, 168/94, the left kidney was removed for recurring attacks of pain and fever. The ureter was bifid, the lower pelvis markedly dilated, the parenchyma showed chronic pyelonephritis but no arteriolar disease. The main artery was narrowed by arteriosclerosis. Blood pressure a year later was 134/78.

Crabtree[38] warned against premature enthusiasm and unwarranted optimism regarding end results in these cases although the procedure was thoroughly justified and indicated for its immediate therapeutic effect. Barker and Walters[39] in 1940 reported 4 additional cases of nephrectomy for hypertension associated with (1) a right kidney weighing 70 Gm., and containing a staghorn calculus, (2) a left kidney weighing 18 Gm. with marked arterial changes (hypoplasia), (3) atrophic hydronephrotic infected kidney due to ureteral obstruction, (4) a left kidney weighing 9 Gm. in a girl of 7 years, in which there was hypoplasia with marked arterial thickening. In all these the hypertension was corrected.

Nesbitt and Ratliff[40] reported 12 cases of "chronic inflammatory nephropathy," in 9 of which there was hypertension. In 5 of the latter nephrectomy resulted in definite improvement, while in 2 cases there was no improvement whatever.

Powers and Murray[41] report the removal of a congenital hypoplastic kidney in a boy of 6 years, with a severe hypertension. The kidney weighed 4 Gm. and was the seat of a secondary pyelonephritis and marked vascular changes. Blood pressure was 244/208, 200/150 before operation, and 130/80 ten months after operation.

Wilson and Chamberlain's[42] patient, aged 12, with blood pressure 190/130 had a nonfunctioning right kidney, weighing 11.5 Gm., removed. Blood pressure one year later was 116/74. The pathologist reported the specimen as the end stage of chronic progressive pyelonephritis. The clinical history gives no evidence of preceding urinary tract infection. I believe this, too, is a hypoplastic kidney.

In reviewing the history and findings in many of the above cases diagnosed as unilateral atrophic pyelonephritis, I am led to believe that they are congenital hypoplastic kidneys which have developed mild secondary infections (frequent in all congenital lesions) and that these kidneys also have defective arteries which tend to undergo degenerative changes much earlier than the vessels of the normal opposite kidney.*

Concerning the Type of Renal Pelvis in Patients with Hypertension

E. W. Campbell[43] presented a paper in Buffalo on June 27, 1940, at the meeting of the American Urological Association on the "Significance of Hypertension in Prostatics with Urinary Retention." It dealt chiefly with the question of gradual decompression of the bladder in two groups of patients, those with systolic blood pressures below 160 mm. of mercury and those with systolic pressures above that level. Of 173 patients, 19 fell into the latter group and seemed most in need of gradual decompression. In 15 of these the hypertension was relieved by the decompression. A urogram in one man of 66 with marked atherosclerosis and systolic pressure of 135 mm., showing bilateral hydronephrosis and right hydroureter, suggested to the author the idea that the dilatation of the pelves and the ureter protected the kidneys from the increased vesical back pressure. If the ureters and pelves did not dilate, the back pressure would be applied in full force to the renal parenchyma, making an increase of blood pressure necessary to continue glomerular filtration. Whether this elevation of blood pressure is directly physical or whether it came about through the ischemic production of a pressor substance was purposely omitted from the discussion. "Our premise deals entirely with an anatomic state as the cause of

* Drury produced a dwarfed kidney in rabbits by a silk loop applied around one renal artery early in life. The affected kidney was 20 to 45 per cent of normal in size. Hypertension developed regularly. If the compensatory mate was removed, the hypertension increased. [J. Exper. Med. 68: 693 (1938).]

Autopsy revealed only one kidney (right), the main renal artery of which presented a small dissecting aneurysm. There was also a sclerotic plaque at the mouth of the artery. The kidney showed marked sclerosis of the interlobar, arcuate, and interlobular arteries.

Blackman[21] reported that in 50 cases of essential hypertension he found partial obstruction of one or both renal arteries in 27 instances.

Hoffman's[21a] patient was a luetic of 28, with blood pressure 190/117 despite signs of cardiac decompensation. At postmortem examination a saccular aneurysm 6 cm. in diameter arising from the left side of the abdominal aorta compressed the left renal artery. The left kidney weighed 80 Gm. and was finely granular, with tubular atrophy. The right kidney weighed 180 Gm. and was smooth, with a few wedge-shaped scars corresponding to thick-walled arterioles. The cause of death was myocardial failure.

Group 2. Cases of Renal Infarction

In Boyd and Lewis'[22] case a man of 31 with severe hypertensive symptoms, hypertensive retinitis, and normal urogram was explored for suspected left adrenal tumor (bilateral exploration). An infarction of the right kidney was found and nephrectomy was performed. The blood pressure before operation was 200/120; six months after operation it was 124/84. There was no change in the retinal lesion. The infarct was ascribed to disease of the renal arterial radicles.

Prinzmetal[23] and his associates observed a woman of 53 with known normal blood pressure and valvular heart disease develop sudden hypertension and oliguria, resulting in death. Postmortem examination revealed bilateral renal infarction due to occlusion of both renal arteries by thrombotic masses. Experiments with perfusate of one kidney demonstrated the presence of the pressor substance and the phenomenon of tachyphylaxis.

Fishberg[24] reported 5 cases of arterial hypertension caused by unilateral or bilateral renal infarction proved by clinical or postmortem findings. Its occurrence seems to be dependent upon the amount of kidney tissue rendered ischemic and the ability of the intact renal parenchyma to neutralize the pressor substance thus produced.

The hypertensive phenomena in cases of periarteritis nodosa with renal involvement are probably on a similar causative basis.

These cases are of interest to the urologist and surgeon chiefly from the standpoint of differential diagnosis.[25] Here the elevation of blood pressure is an acute phenomenon, resolving with recovery or terminating in death.

Group 3. Hypertension Caused by Renal Compression

Farrell and Young[26] reported a patient 18 years old with blood pressure 154/102 caused by an old perirenal hemorrhagic cyst that resulted from trauma twelve years previously. The renal vessels showed sclerosis and narrowing of the lumina. Blood pressure ten months after removal of the kidney and the surrounding cyst was 114/74.

This is the only case of its kind recorded. It simulates Page's experiment in animals.

Group 4. Orthostatic Hypertension

McCann and Romansky[27,28] investigated 5 patients with hypertension and nephroptosis by making studies of blood pressure, renal blood flow, and filtration rate in the recumbent and erect positions. These studies showed that in such individuals the assumption of the erect posture caused elevation of the blood pressure, diminished blood flow, and increased filtration rate—i.e., diodrast clearance decreased as inulin clearance increased. Normal controls and hypertensives without nephroptosis did not show these effects. Appropriate therapy for the nephroptosis may improve the clinical symptoms and stabilize the blood pressure at lower levels. The authors believed that change to the erect posture caused some interference with the afferent blood supply to the kidney, resulting in production of renin.

Riskind and Greene[29] report the case of a woman, aged 47, with hypertension, thought to be climacteric, in whom urologic study showed bilateral normal extrarenal pelves. When she was in the erect position, however, there was noted a torsion of the right kidney of 45 to 60 degrees. Symptoms were relieved and blood pressure lowered considerably by the wearing of a proper abdominal support.

In both these reports it would seem that the mechanical factors accentuated but did not cause the hypertensive state.

Group 5. Pyelonephritis (Atrophic Unilateral) and Congenital Hypoplasia (Unilateral)

Fishberg,[1] in the 1934 edition of his book on hypertension and nephritis, stated that pyelonephritic-contracted kidneys could result in renal insufficiency and hypertension closely simulating the clinical picture of chronic glomerulonephritis, and that this was by no means a rarity. In 1933 Longcope and Winkenwerder[30] reported 9 cases of chronic nephritis terminating in uremia, in which postmortem examination revealed bilateral pyelonephritic-contracted kidneys with dilated pelves. In 5 of these hypertension had been



FIG. 3.—Right extrarenal pelvis. Left intrarenal pelvis.

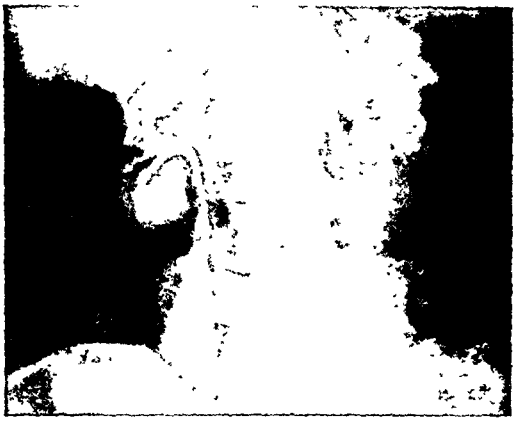


FIG. 4.—Both kidneys somewhat small. Right pelvis borderline. Left pelvis extrarenal.

and noted all deviations from the average normal and all pathologic lesions.

We wish to point out that the decision on this point requires careful inspection of all films of each series. A pelvis may be small or bifid yet definitely extrarenal. The phase of filling may alter the appearance at different time intervals for the same pelvis. Occasionally retrograde pyelography has been necessary in order that we might reach a conclusion and has contradicted the interpretation of the excretory urogram. All three of us inspected the films, and whenever there was a difference of opinion, the renal pelvis in question was classed as borderline. The result of this analysis is shown in Table 1. In 61

TABLE 1.—UROGRAPHIC FINDINGS IN 100 CASES OF HYPERTENSION

Both pelves extrarenal	61
Both pelves intrarenal	4
One pelvis extrarenal, one intrarenal	16
One pelvis extrarenal, one borderline	13
One pelvis intrarenal, one borderline	6

per cent of these hypertension cases the pelves of both kidneys were extrarenal. In only 4 per cent of these hypertensives were the pelves of both kidneys intrarenal. It is our belief that these figures, together with those of Sarnoff, and of Hyman and Schlossman, make untenable the clinical concept proposed by Ravich. Certainly on the basis of this theory operations for "decompression" of the renal pelvis in hypertensives seem totally unjustifiable.

Incidence of Gross Renal Lesions in Cases of Hypertension

We have already discussed certain lesions, vascular and parenchymal, which upon the basis of theoretic, experimental, and clinical grounds seem to be causatively related to the hypertensive state and amenable to relief by nephrectomy.

A comprehensive review of unilateral renal lesions in their relationship to hypertension has been made by Abeshouse.[43] He emphasizes the fact that a causative relationship between the discovered lesions and the hypertensive state is frequently not established and that they may well be entirely coincidental. Thus in 600 cases of hypertension Wosika and Maher found 101 with urologic lesions (16.8 per cent), chiefly those of obstruction and infection; only 26 (4.3 per cent) were parenchymal renal lesions. Schroeder and Steele in 218 cases of hypertension found 58 renal cases: 14 glomerulonephritis, 4 pyelonephritis, and 8 calculi, while in 29 obstruction and infection were present. In another study of 71 cases in young subjects with no apparent renal function impairment more than half had some type of urinary obstruction. Harrison and Williams found 30 of 100 cases to have urologic disorders. Oppenheimer, Klemperer, and Moschcowitz reviewed 5,000 autopsy records with 24 per cent incidence of hypertension, while in 97 cases of unilateral renal disease the incidence was 40 per cent. In 18 cases of unilateral narrowing of the main renal artery, 15 had hypertension; in 66 cases of unilateral hydronephrosis and chronic pyelonephritis, 21 had hypertension; in 13 cases of unilateral congenital hypoplasia, 3 had hypertension. In 353 cases reviewed by Chute, 42 had renal lesions. Braasch, Walters, and Hammer reviewed 1,684 patients subjected to renal surgical procedures: 315 (18.7 per cent) had elevated blood pressure (one-third improved by operation), while in a control group of 975 cases 195 (20 per cent) had hypertension. Crabtree and Chaset reviewed 150 nephrectomies for severe unilateral damage, and only 14 (9.3 per cent)



FIG 1.—Bilateral extrarenal pelves.

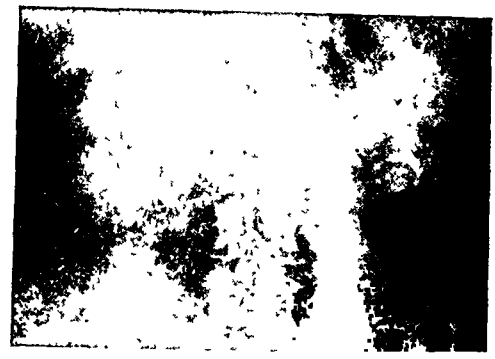


FIG 2.—Bilateral intrarenal pelves.

hypertension in the presence of an infravesical obstruction. . . . . In man the majority of renal pelves are extrarenal. . . . . Since the intrarenal pelvis is almost entirely intraparenchymal, dilatation is limited and the entire force of back pressure is exerted upon the parenchymal blood supply and the secretory mechanism of the kidney. Is it not reasonable to believe that hypertension should occur more readily in the presence of an intrarenal pelvis, whether it be from renal ischemia or a physiologic elevation of blood pressure to maintain secretory pressure?" The author stated that more data on this point would be collected. His concluding paragraph reads thus: "A theory is advanced that hypertension occurs in a small group of prostatic patients because of the inability of the upper urinary tract to dilate due to an anatomic factor—namely, an intrarenal pelvis." The author cites and gives credit to Randall and Hughes[44] for this concept.

Ravich,[45] without referring to these earlier papers, adopted this theory to explain *all hypertension* in man as the result of some pathologic change in kidneys with an intrarenal pelvis. These changes, "minor but important deviations from normal," were often completely overlooked by other investigators.* He stated that hypertensive cases were almost invariably associated with kidneys having an intrarenal pelvis and that in no patients with extrarenal pelves was hypertension present. He also thought that the cure or recurrence of hypertension after nephrectomy depended upon whether the remaining kidney had an extrarenal or an intrarenal pelvis. The mechanism of the production of hypertension he believed to be direct pressure upon the renal artery by the intrarenal pelvis subjected to back pressure, thus causing renal ischemia. The resistance to the flow of blood through the kidneys is blamed for the hypertension and cardiac hypertrophy; the pressor substance theory (now well established) is dismissed as a will o' the wisp. The observations are based on 200 cases, presumably studied by urographic methods, but no data are given as to the proportion of these actually having intrarenal pelves. There is much theoretic talk and little of factual support for the concept offered as a clinical one.

Sarnoff[46] at the Brady Institute in Baltimore studied 50 hypertensives and 100 controls. He found one or both pelves to be intrarenal in 40 per cent of the hypertensives, and in 30 per cent of the controls, an insignificant statistical difference.

He also pointed out that the intrarenal pressure would have to rise to 75 mm. of mercury (102 cm. of water) to begin to occlude the average renal artery. Moreover, if there is increased intralumenal pressure, the ureters can dilate when the pelves are intrarenal, and this should be readily discernible on the urograms. Hyman and Schlossman[47] point out the fallacies in many of Ravich's statements. In 55 cases of hypertension coming to autopsy the incidence of intra- and extrarenal pelves was about equal. In 200 urograms no higher incidence of intrarenal pelvis was found in hypertensive patients as compared with normotensives. They also call attention to Goldblatt's[3] experiments showing that ureteral obstruction in an ischemic kidney tends to nullify the hypertensive effect of the latter.

Review of 100 Cases of Hypertension

We have studied satisfactory urographies in 100 patients observed in the hypertension clinic at the Jewish Hospital of Brooklyn. They fall in the age groups of the second to the sixth decades, and their elevated blood pressures above the maximum norms were repeatedly established. We have classified the renal pelves as extrarenal, intrarenal, and indeterminate (borderline or ±)

* This statement reminds one of the frequent incorrect and unjustifiable diagnosis of ureteral stricture based upon misinterpretation of normal peristaltic configurations in ureterograms.

tion amenable to chemotherapy and decapsulation. Goldblatt has aptly expressed this point of view; when hypertension is found in patients with unilateral renal lesions, nephrectomy should be carried out only if that were the procedure of choice without reference to the element of hypertension in the case.

The early discovery and recognition of an irremediably deficient or irretrievably damaged kidney is vital to patients whether they are hypertensive or not. There is some experimental evidence to show that ischemia of one kidney can cause disturbed blood flow and intrinsic blood vessel changes in the opposite kidney. That this is true in man has not been demonstrated as yet; nevertheless it seems sound to proceed with nephrectomy in these cases because it is the procedure of choice on other old, established grounds.

Patton, Page, and Ogden[50] produced hypertension in rats by constricting one renal artery. After varying periods the corresponding kidney was removed. If this was done within ten weeks, 10 per cent showed no change in blood pressure, 40 per cent showed definite lowering of blood pressure, and 50 per cent had a return to normal levels. If the kidney was removed from eleven to forty-five weeks after establishment of hypertension, 50 per cent showed no change in blood pressure, 42 per cent showed some decline, and only 8 per cent had a return to normal.

Collected reports of nephrectomy in man for hypertension showed that of 233 cases 60 per cent had no change, 10 per cent had some decline, and only 30 per cent had return to normal levels of blood pressure. The combined experience of three experimental studies in rats likewise showed only 29 per cent had return of blood pressure to normal. The remaining undisturbed kidney showed arteriolar and glomerular changes. (Two weeks of rat life is equivalent to one year in man.)

Illustrative Experiences with Renal Lesions in Hypertensives—Case Reports

Some cases from my private files deserve comment. (P. W. A.)

Case 1.—W. B., a man of 35, had a blood pressure of 155/100 in 1936, when he had a peritonsillar abscess incised. In 1940 his blood pressure was 210/140, and urinalysis showed a faint trace of albumin and a few hyaline casts. Hyperthyroidism was suspected, but the basal metabolic rate did not confirm this. In July, 1942, the blood pressure was 230/160. Urine concentrated to 1.024. Phenolsulfonphthalein excretion was 64 per cent in one hour. Excretion urography carried out upon my advice showed a small, congenitally hypoplastic but functioning left kidney. The right kidney was normal (pelvis extrarenal). The left hypoplastic kidney was removed; it was very small, grossly granular with marked arterial changes in the main and smaller vessels. Six months later subjective symptoms were relieved, and blood pressure was 160/125. There has been definite benefit after nephrectomy although the diastolic pressure has remained much above the level of 1936.

Case 2.—M. G., a man of 56, with blood pressure 180/110, was found to have a large calculus in the lower pole of the left kidney (both pelves were intrarenal). On June 17, 1941, left nephrolithotomy was performed. On August 9, 1941, blood pressure 140/90. Subsequent blood pressure readings by his physician were 140/90, 150/100, but an electrocardiogram suggested posterior wall infarction. Had a nephrectomy been done, this procedure would have been credited with the lowered blood pressure after operation.

Case 3.—A. G., a woman of 42, had had right renal colic twelve years before, at which time a right bifid pelvis was discovered. She was a known allergic, subject to attacks of asthma. She was also a known hypertensive. Attacks of right renal colic recurred every eight to twelve months. In 1939 her blood pressure was 170/100. A right nephropexy was done at the Kings' County Hospital, without relief. Urography, in July, 1941, and cystoscopic data revealed a normal left kidney (pelvis extrarenal), a bifid right pelvis (also extrarenal), with good function on both sides. The lower right renal pelvis seemed slightly dilated, the kidney was well fixed.

I entertained the thought that this kidney might be a "Page perinephritis kidney," which would explain the persistent pain and hypertension. Subcapsular nephrectomy was performed, the kidney being densely encased in fibrous tissue. While convalescing, the patient's blood pressure returned to normal limits, but a month later it was 170/100 and four months later, 180/90. Then attacks of left renal colic with red cells in the urine appeared. Urologic study showed no demonstrable lesion of the remaining kidney. I believe that this woman's renal pain and hypertension are of vasomotor origin. The question of a splanchnicectomy and sympathectomy should be seriously considered. I had an identical experience with another woman patient some years ago. I did the nephropexy, and another urologist did the nephrectomy, with subsequent appearance of renal colic on the other side.

Case 4.—M. C., a woman of 47, known to have hypertension for three years, gave a history of left renal colic twenty-two years before which had recurred for three years. This was not studied then, not even x-rayed, and was forgotten until an attack of left renal colic occurred in January, 1942. There was now found a normal right kidney, left renal calculi with an impassable obstruction at the left ureteropelvic junction, pelvis intrarenal, large, clubbed calices. The blood pressure was 166/88. Left nephrectomy and partial ureterectomy were performed on March 24, 1942. In July, 1942, the blood pressure was 135/85. This is an instance of good effect upon the blood pressure after nephrectomy.

Case 5.—M. B., a woman of 40, had blood pressure of 184/110. There were no renal or urinary



FIG. 5.—Bifid pelvis, extrarenal.

had hypertension, of which only 2 had a decline in blood pressure after operation.

Friedman, Moschcowitz, and Marrus[49] studied 193 cases of nephrectomy for unilateral renal disease. The incidence of hypertension was no greater than in a control series. There was no correlation between type of lesion and elevated blood pressure. Of those with hypertension only 7 per cent had a postoperative decline, whereas 22 per cent with normal pressure developed hypertension after operation. Arteriolar sclerosis was found in the kidneys of 82 per cent with hypertension, as compared to 33 per cent with normal pressures who later developed hypertension. Their final conclusion was: When hypertension is associated with a unilateral renal lesion, the lesion and not the hypertension should influence the decision as to the advisability of nephrectomy.

In Table 2 are listed the deviations from normal found in 27 of 100 cases of hypertension all

TABLE 2.—UROLOGIC LESIONS IN 100 CASES OF HYPERTENSION

Unilateral hypoplasia		2	Calculi	5
Bifid pelvis		8	Neoplasm	1
Aberrant vessel		2	Cyst	1
Abnormal mobility	R	2	Polycystic kidneys	1
	L	1		
	Both	2		
Chronic atrophic pyelonephritis			Pheochromocytoma	1

of whom presented themselves solely because of the symptoms of hypertension and not because of urologic complaints. The 8 bifid pelves were deviations from normal of no clinical significance, nor did the 2 aberrant vessels cause obstruction. The 2 cases of hypoplasia have not been subjected to nephrectomy as yet but this will be considered seriously and advised. The 5 patients with abnormal renal mobility have been managed by an appropriate support; thus far nephropexy has not been advised. The solitary cyst at the lower pole of an extremely mobile kidney was removed and fixation accomplished with no change in the blood pressure. The hypernephroma was removed after which some lowering of the blood pressure occurred. The pheochromocytoma with paroxymal hypertensive episodes was very recently removed; the result of this type of case should be excellent.

A man with eight years' severe hypertension was found to have a large left ureteral calculus and nonfunctioning left kidney. He had no change in his clinical course after nephrectomy. A young woman with bilateral staghorn calculi and blood pressure of 170/90 had one side operated upon, the calculus being removed by nephrotomy. There was definite lowering of the blood pressure to 140/85 six months thereafter. The patient with bilateral atrophic pyelonephritis had been operated upon for an epidural abscess that caused acute spinal compression paralysis in 1938. As a result of bladder paralysis ascending pyelonephritis occurred necessitating right renal decapsulation. He recovered from both these serious lesions but bilateral renal infection persisted and hypertension developed and progressed terminating in death from renal insufficiency in 1942. Sulfonamides had been ineffectual. Autopsy showed bilateral pyelonephritic-contracted kidneys. I know of no surgical procedure to benefit uncomplicated polycystic kidney disease.

A Sound Point of View for the Urologist in Hypertension Cases with Gross Renal Lesions

The specialty of urology has consistently aimed at the conservation of functioning or redeemable kidney tissue. That aim should not be lightly abandoned. A congenital hypoplastic kidney can well be spared by a patient with or without hypertension for it can never be of adequate functional value and it is often subject to recurring infection. If the arterial blood supply to one kidney is seriously impaired by atheroma or aneurysm surely that kidney can be sacrificed with benefit. If one kidney is healthy and uninfected and the other shrunken, with function impaired by chronic pyelonephritis (with or without calculus) that kidney should be removed. But hypertension alone is no excuse for sacrificing a kidney with an easily removable calculus, a remediable hydronephrosis, or a cortical infec-

The decision regarding nephrectomy in hypertensives should be based upon the nature of the renal lesion alone, with due reference to time-honored considerations of conservation of renal tissue which may later stand the patient in good stead.

When the causal relationship of a unilateral renal lesion to hypertension seems probable, early recognition of this relationship, with prompt nephrectomy, enhances the likelihood of a good result.

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THE FIFTH FREEDOM

Add to the now famous four freedoms, freedom from pain. Nor is this an attempt to take our attention from the emotional elements of the war. We sincerely believe that this fifth freedom is a desire as basic as the others.

To test its power, throw the golden apple among mortals with the promise that one freedom shall be theirs. In the face of pain, is there one of us who would ask for freedom of speech?

But the public has not learned of the intricate balances of the body. People do not sense the complex problems involved in the field of medicine. They are willing to purchase freedom from pain at any price, but they will buy, as they do an automobile or a hat, from the salesman who is able to gain their confidence.

So we find an admittedly ignorant public but a public that is highly sincere in the selection of its medical care. Sincere because they want freedom from pain. Ignorant because they profess no knowledge of how this may be accomplished.

It does provide a fertile market for the unscrupulous cultist, who, without training, uses his powers of influencing others to the point that his patients believe his treatment to be adequate. He glosses his limitations with a veneer of optimism which the patient interprets to be confidence. He is in contrast with the doctor of medicine, in that he requests a governing body, instead of a school, to make a doctor of him.

The quarrel does not concern the layman, because he fails to understand the principles involved. He goes on a personal errand. He has interest neither in cults nor in diplomas. He has no thought but for the cure of his ailment. There is no desire but for freedom from pain.

From our point of view there are two solutions.

One is to force the layman to do what is best for him, in spite of his misguided beliefs. The other is to teach him the truth, to talk to him in words he knows the meaning of, to show him how he may select his medical care safely. Either of those methods would provide the layman much freedom from pain, but certainly the latter plan cannot be altogether ignored.—*Wichita (Kan.) Med. Bull.*

symptoms. Urography by her physician revealed a normal left kidney, the pelvis extrarenal. The right kidney showed calculus at the ureteropelvic junction—dilated calices with four small calculi in them. At operation upon the right kidney a large extrarenal pelvis was found, and the calculi were removed. The blood pressure one year later is 140/85, but a small calculus is now seen in each kidney. Here is a definite beneficial effect upon the blood pressure by a conservative surgical procedure fortunately pursued in view of calculus reformation on the operated side and the new development of a calculus on the opposite side.

Case 6.—R. R., a woman of 46, had had a left nephrolithotomy performed ten years before and a right ureterolithotomy nine years before. In 1928 my study showed a calculus filling the pelvis and calices of the right kidney, with definite diminution of function. I was inclined to perform nephrectomy, but the late Dr. Edwin Beer advised a conservative procedure because of the previous history. A difficult but very successful nephrolithotomy was performed. The right renal pelvis was extrarenal, the left was intrarenal and bifid. This woman has been under my observation ever since. When she was 56 years old hypertension was noted, the blood pressure being 180/110. Check-up studies revealed satisfactory function of both kidneys. A few minute concretions were noted in the right kidney. There was one episode of acute pyelonephritis due to obstruction by one of these coming down into the lower ureter. This was relieved by ureteral catheter, and the concretion was passed. Blood pressure ranged between 165 and 185 systolic, 105 to 110 diastolic. When she was 60 it was 200/110. At 65 the patient appeared with an inoperable carcinoma of the cecum. Despite the development of hypertension, I believe that conservation of her right kidney served her well for many years.

Case 7.—S. A., a woman of 30, was first seen in March, 1935, referred by her physician because of hypertension and pyuria. She had had scarlet fever in childhood. Nine years before she was treated for "sand in her kidneys" by medication. She had been married for six years. Two pregnancies had been terminated at seven and eight months because of high blood pressure. She complained of persistent hypertension, headaches, and backaches. Her blood pressure was 200/110. Her heart was enlarged, and the radial arteries were thickened. The urine showed albumin, leukocytes, and erythrocytes. Eyegrounds showed thin retinal arteries. X-ray and cystoscopic study showed a normal left kidney, first degree pyelectasis with 6 cc. retention on the right, and two small calculi in calices. Function on the right side was diminished, and a specimen from this kidney showed leukocytes and bacteria. Under observation the pyelectasis of the right kidney increased—retention 20 cc.—and in October, 1936, operation was consented to. The blood pressure was still 200/110. There was fair right renal function with indigo carmine. I found an aberrant vessel crossing the ureteropelvic junction, a dilated extrarenal pelvis, and calculus in a calix. The aberrant vessel was divided, the calculus was removed, and a Schwyzer (Y) ureteropyeloplasty was performed with nephrostomy. The right adrenal gland was removed (this would not be done today).

The blood pressure one week after operation was 120/80. The postoperative follow-up studies showed (1) persistent mild infection of the right kidney and (2) retention 3 to 6 cc., but urography showed persistent pyelectasis of the right kidney. Treatment was by available urinary antiseptics and lavage of the right renal pelvis. The blood pressure one year after operation was 130/85. The patient became pregnant, delivered at term, and had no exceptional difficulty so far as the urinary tract was concerned. The maximum blood pressure during pregnancy was 142/94. Three years later, however, she again conceived. The blood pressure was 150/85 and urine showed albumin and many leukocytes; therefore, interruption of the pregnancy was advised. This is another instance in which hypertension was relieved by a conservative and not altogether successful procedure.

Case 8.—Recently 4 patients who had had nephrectomies some years before were referred for urologic study because of hypertension. In two the remaining kidney showed a normal extrarenal pelvis, in two an intrarenal pelvis.

Conclusions

In view of the newer knowledge of arterial hypertensive disease, internists should insist upon a urologic study of all hypertensive patients, excretion urography being the minimal requirement.

Urologists should give more regular attention to the blood pressure trends in their patients in order to detect incipient hypertension and evaluate its relationship to the urologic disorder under consideration.

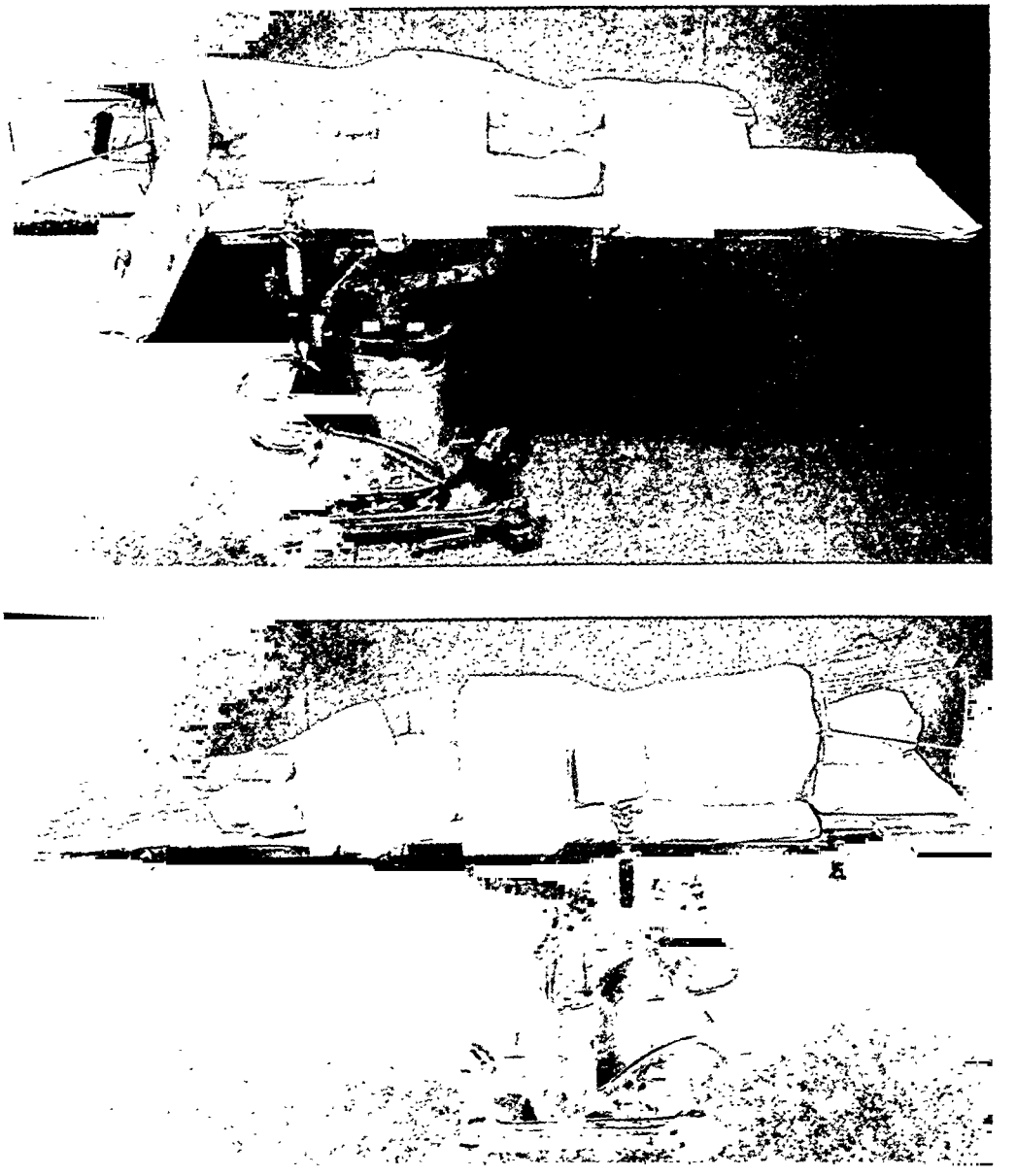
Pathologists should give more detailed study to the main renal vessels in kidneys removed at operation and obtained at postmortem examinations.

The discovery of obstructive uropathies in their early stages is the duty of every practitioner, and their effective management is the function of the urologist.

The exhibition of the newer urinary antiseptics (mandelates, sulfonamides) may materially lessen the incidence of progressive pyelonephritis.

The theory of the intrarenal pelvis is an etiologic factor in hypertension of renal origin can be safely dismissed on the basis of data herewith presented and the observations of others on this question.

The relationship of a unilateral renal lesion to coexistent hypertension is an individual problem in each case encountered. In occasional instances it is a definite etiologic factor, in some instances it is contributory, in most cases it is merely coincidental.



FIGS. 1 and 2. Lateral position demonstrating flexion of knees and the correct position of anterior and posterior brace, allowing unrestricted activity of the dependent chest wall.

bronchial tree, and the extent of the surgical procedure. Attention to the following factors will aid in the management of the patient and will enable the anesthetist to meet untoward reactions which may occur.

Preparation of the Patient.—Postural drainage is performed in the morning. Often the six-position method will allow the patient to evacuate a considerable amount of sputum which may have accumulated during the night. Patients with bilateral bronchiectasis who have copious secretions will often require aspiration by bronchoscopy immediately before the onset of anesthesia. It is essential to obtain a clear and patent tracheobronchial tree previous to surgery. Preanesthetic medication should be administered only after an efficient evacuation of the secretions. The operative procedure need not be delayed;

ANESTHESIA FOR THORACIC SURGERY

BENJAMIN ETSTEN, M.D., Albany

ANESTHESIA for thoracic surgery occupies rather a unique position in specialized efforts today. It shares at the moment, along with thoracic surgery itself, in the fruition of that most credible combination of contributions to any medical discipline: a sound and fundamental understanding of the pathology and pathologic physiology of the systems involved, astute clinical observations and interpretations of the manifestations of these abnormalities, ingenuity, boldness, and finesse in the attack itself upon the problems presented, and finally—and most important—a reasonable and varied experience, charged with honest differences of opinion as to details and sufficient for cursory analysis of its results.

The recent literature, specific to this field, can be divided rather sharply into two categories. There are those reports which are concerned primarily with physiologic functions, technical difficulties, the significance of depressant drugs as a group, the maintenance of gaseous exchanges, and mechanical circulatory integrity. On the other hand, there have also been many reports chiefly concerned with the defense or enthusiastic commendation or condemnation of particular anesthetic agents per se as being particularly indicated or contraindicated for anesthesia in this region. Some of these articles have attempted to place credit upon one agent and to impose stigmata upon other agents on the basis of experience, results, and comparisons which have raised the question of the credibility of the relative part played by the anesthetic agent as opposed to the skill and experience of the surgeon and his surgery. There are anesthetic agents which share with mechanical devices in a quality which necessitates training, skill, and experience in their usage, occasionally leading individuals who lack such training, skill, and experience to condemn them as being dangerous and impractical. Those artisans who are not trained for their art rightly restrain themselves within these bounds. At any rate, in this relatively new field it seems obvious that it is unimportant to waste time, energy, and journal type on the relative merits of agents when there are so many intricate and fascinating problems challenging us for solution. In anesthesia for chest surgery, it is particularly true that the anesthesia depends primarily upon the anesthetist rather than upon the anesthetic.

Patients who required thoracic surgery present varying degrees of pulmonary dysfunction. The evaluation of the respiratory reserve and the adequate preoperative and postoperative management of the patient, as well as the ability to overcome the various problems attendant with chest surgery, are the essential duties of the anesthetist.

Respiratory Reserve

Respiratory function tests are of value because they serve as guides in determining the degree of impairment of ventilation due to partial obstruction of the airway, reduced capacity of movement of the lungs, and the reduced distensibility of the lungs.

Bronchospirometry is a method by which one is able bronchoscopically to determine the size and function of each lung. The gases that ventilate the two lungs are kept entirely separate, and the extent to which they contribute to the total pulmonary function can be measured. Bronchospirometric studies have revealed that oxygen consumption in certain types of tuberculous pulmonary disease may be greater than the carbon dioxide elimination,[1] that the dependent lung of a person in the lateral position assumes the major role in ventilation and is functionally the more important,[2] and that the paralysis of one leaf of the diaphragm may reduce oxygen consumption over 20 per cent on that side.[3]

Maximum minute ventilation measures the volume of exhaled air collected in a Haldane bag during the greatest inspiratory and expiratory efforts over a definite time interval. The normal average is 100 liters per minute for women and 150 liters per minute for men. This test provides a measure better correlated with actual pulmonary function than the volume change of a single breath, which is the vital capacity. A decrease in maximum breathing to 30 liters per minute indicates a severely embarrassed respiratory reserve. The most important factor in determining the patient's ability to withstand unilaterally induced changes in intrapleural pressure is the individual's maximum minute ventilation prior to the production of the disturbance. Patients with limited pulmonary reserve will require active control and supervision of respiratory exchange during anesthesia.

Problems Associated with Chest Surgery

The problems attendant on chest surgery vary with the degree of respiratory reserve, the pulmonary pathology, the patency of the tracheo-

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 5, 1943.

From the Department of Anesthesia, Albany Medical School and Hospital, Albany, New York.

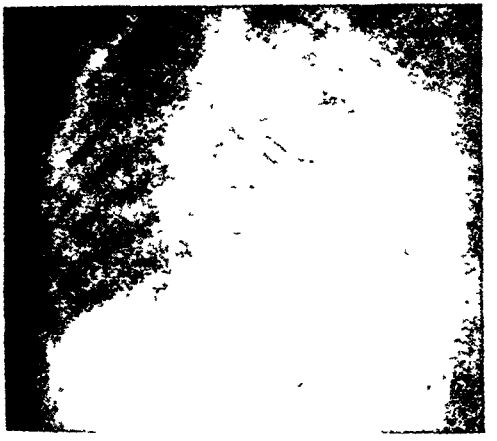


FIG 3 Suction catheter placed in left major bronchus by the method outlined.

flatable cuff. Any tube that is placed near the bifurcation may obstruct the secretions from entering the trachea and so cause a damming back into the good lung. The presence of the thin, rubbered cuff insures a tight fit, allows constant control of exchange of gases, permits an even maintenance of anesthesia and affords a method with which to control respirations. Inflation of the cuff often is not necessary when several vaselined packs are engaged in the oropharynx.

When secretions are copious, or when blood or pus is present, an endotracheal technic allows the use of endobronchial suction. This can be performed by first rotating the head to the opposite side of the bronchus to be aspirated; a vaselined urethral catheter can then be passed directly into the desired bronchus (Fig. 3). This technic can be utilized for aspirating either the left or the right side. During the production of an open pneumothorax, the manipulation of the lung, or while changing the position of the patient a small-sized suction catheter can be stationed in the desired bronchus. Anesthesia can thus be successfully maintained during the aspiration of secretions.

Reflexes.—Cough during open chest surgery is ineffective in clearing secretions. It may cause damage to the lung and give rise to circulatory disturbances. However, an *active* cough reflex during extrapleural surgery may be of great value in clearing the trachea and bronchi, especially in such procedures as the drainage of lung abscesses, drainage of empyemas complicated with a bronchopleural fistula, and in certain thoracoplasties.

Although the cough mechanism has a supposedly spreading action, the incidence of spread of infection in patients with a cough reflex prior to surgery is extremely low. The spread of secretions and infection may be attributed to inefficient suction, to an increased intrapleural pressure that occurs during laryngeal spasm or in any type of upper respiratory obstruction, and to a depressed cough reflex in the postoperative period.

Vagal reflexes may occur, regardless of the anesthetic agent, when traction is applied to the hilar region of the lung or during dissection about the major bronchus. Usually an increased depth of anesthesia, release of traction, or cessation of surgery will result in the disappearance of the reflexes.

Anesthetic Technics for Lobectomy or Pneumonectomy.—An open pneumothorax is present as soon as the pleural cavity is entered. The lung on the affected side collapses; the mediastinum shifts and compresses the other one. Full expansion of the sound lung during spontaneous respiration is reduced. Maximal inspiration of the chest wall and diaphragm set in, and there is a compensatory increase in mechanical respiratory effort. Since the thorax does not expand equally in all directions, but only in certain limited directions, the expanding lung makes internal adjustments and may produce a torsion and twisting of the bronchi during increased breathing.[6] Spontaneous respirations, if allowed to persist, would result in an increased oxygen demand, exhaustion of the respiratory muscles, and a diminished elimination of carbon dioxide.

Positive Pressure vs. Controlled Respirations.—Positive pressure anesthesia is a method whereby manual pressure is applied to the breathing bag, increasing intrabronchial pressure, during the inspiratory and expiratory phase of respiration. Positive pressure anesthesia interferes with the bellows action and the mixing of the physiologic gases. The elimination of carbon dioxide from the alveolar spaces is entirely dependent upon the mixing action of the lungs. Increases of carbon dioxide without notable clinical signs may occur. Ventilation is hampered; the respiratory efforts become straining in character during the expiratory phase. This method always affords the risk of impacting secretions in the smaller bronchi with subsequent atelectasis.

The term "controlled respirations" signifies that the active respiratory efforts of the patient have been abolished and that pulmonary ventilation is under the control of the anesthetist. This method may be accomplished either by (1) lowering the patient's carbon dioxide until it no longer stimulates the respiratory center, or (2) depressing the respiratory center by sedative drugs and anesthetic agents so that it does not respond to normal carbon dioxides, or (3) by

postural drainage, bronchoscopy, or both, will in most cases clear the pulmonary tree.

Position on the Table.—The maintenance of the correct position of the patient on the operating table should not interfere with respiratory activity. When the lateral position is assumed, the diseased lung of the patient is uppermost. However, as stated above, the dependent lung assumes the major role of ventilation, even in the normal chest. This is due to the shifting of the mediastinum and viscera toward the lower side, which relaxes the dependent portion of the diaphragm more than the upper one. This relaxation allows a wider excursion with a resultant increase in ventilation, providing that neither the chest wall nor the abdomen is constricted by braces, rolls, or packs (Figs. 1 and 2). The legs are flexed to obviate any tension on the abdominal wall in order not to hinder diaphragmatic excursions. The anterior brace is placed at the level of the xiphoid and the posterior one opposite the sacrum. The braces are placed so that the abdomen or chest will not be constricted between two points. Straps are placed over the hips and knees to keep the patient in place. This method of positioning the patient allows unrestricted activity of the healthy lung.

The Trendelenburg, or head-down, position has some virtues and some definite limitations. The lowering of the head aids the venous return to the heart and improves cerebral circulation. It is questionable whether this position is a protective measure against air embolism to the vital structures. Moore[4] found that the position of an animal had little or no effect when air was injected into the pulmonary veins. Moreover, he demonstrated that the danger of air embolus is not to the cerebral vessels but to the coronary vessels of the heart. The head-down position of more than 20 degrees inhibits pulmonary exchange. A compensatory increase in respiratory rate takes place with a resultant tiring of the chest musculature. This position is supposed to be important from the standpoint of drainage of secretions by gravity. The anatomy of the tracheobronchial tree should first be considered to determine the degree of head-down position necessary in order to obtain effective drainage and to minimize the contamination of the contralateral lung and the apices. The entrances of the right and left major bronchi are directly opposite each other, the right forming an obtuse angle and the left an acute angle with the trachea.

Lipiodal studies[5] were made to determine the degree of head-down position necessary for secretions from the uppermost bronchus to gravitate directly into the trachea without spilling over to the dependent lung. It was found that at least a 35-degree head-down position was necessary to avoid contamination of the opposite lung. This position does not protect the apices from secretions in cases of bronchiectasis where the disease is at the bases of the lungs.

Therefore, it seems that either a 35-degree Trendelenburg or the head-up position may be effective during a lobectomy for bronchiectasis and also for drainage of empyema with a bronchopleural fistula. The flat position is all that is necessary when there is a minimum of secretions. The moderate head-down position can be reserved for cases which incur a diminished circulatory blood volume; the Trendelenburg should be steep for gravity drainage of material from the pulmonary tree.

Apparatus.—The apparatus required for thoracic anesthesia serves only as a means by which the anesthetist can efficiently control the exchange of the physiologic gases, maintain an adequate level of narcosis to prevent untoward reflexes, and adequately keep the tracheobronchial tree clear.

Waters' carbon dioxide absorption to-and-fro method has definite advantages for anesthesia in thoracic surgery. The to-and-fro canister is the most efficient apparatus for the absorption of carbon dioxide. It offers the least resistance to respirations, considerably less than the circle filter method. The anesthesia bag is under complete control of the anesthetist, which allows constant management of the respiratory exchange.

Endotracheal intubation is considered essential during open chest surgery for the provision of a patent airway, the avoidance of laryngeal spasm, and as a means for the removal of secretions from the trachea and bronchi. The diameter of the endotracheal catheter should be as wide as will pass through the glottis. This will minimize obstruction and resistance to the exchange of gases. Any smaller-sized endotracheal tube decreases the diameter of the trachea, allows dead space between the catheter and trachea, increases the resistance to expiration, and is a hindrance to effective elimination of carbon dioxide from the lungs.

Coiled wire tubes of the Flagg type are stiff and thick. They may cause damage to the protective cilia of the trachea and decrease the size of the lumen considerably. The Magill rubber catheter, in comparison, is soft but firm enough for intubation. The lumen is wider than it is in most other tubes. Aspiration is facilitated by using a vaselined urethral catheter. Admittedly, more experience and ability in intubation are necessary when employing a Magill tube.

Inflatable cuffs, attached to the distal end of the endotracheal tube, offer far too many advantages to be discredited on theoretic grounds. Spillage from a diseased lobe is not due to an in-

of air from the pleural cavity through a catheter or needle following its closure.

The use of cyclopropane is of great aid in thoracic surgery. According to Drs. Waters and Rovenstine and others, it has a potency similar to that of ether and chloroform and is nontoxic to the liver and kidneys and nonirritating to membranes. Induction is rapid, laryngeal reflexes are quickly abolished, and endotracheal intubation is easily accomplished. High oxygen concentration can be given with cyclopropane, respiratory movements are reduced to a minimum, and the potency of cyclopropane permits safe and rapid production of apnea or controlled respiration whenever it may be desirable. It is rapidly excreted and cough reflex is easily established.

Adequate oxygenation and maintenance of blood carbon dioxide can be controlled within normal limits by this method. The most common causes for rise in systolic pressure and pulse are excess of blood carbon dioxide and oxygen want. With these causes in mind, the anesthetist can change the canister to absorb the excess carbon dioxide or to administer enough oxygen to meet the patient's need.

White and Buxton, of Ann Arbor, Michigan, have made studies in blood loss in thoracic operations. They report that in thoracoplasties the average loss of blood is 500 to 700 cc. In lobectomies and pneumonectomies, the average loss was 1,600 cc. of blood. These studies have shown that the amount of blood lost at operation is greater than has been supposed or estimated.

There are other problems that are not so common, but the anesthetist must be on the alert throughout the operation to recognize them, for they may mean the life or death of the patient. They are air embolism, sudden hemorrhage, and abnormal vagal reflexes. The diagnosis of air embolism is a sudden circulatory collapse in a matter of seconds. The treatment is to prevent it from the very beginning—head and shoulders should be lower than the rest of the body, deep respiratory movements and too much positive pressure should be avoided, and blood volume should be restored. In sudden hemorrhage from rupture of pulmonary veins, the diagnosis is self-evident and treatment is prophylaxis. Abnormal vagal syndromes may be explained on a basis of the pulmonary cardiac reflex. Clinically there are two types that may occur—the cardio-inhibitor type, in which the heart is slowed, pulse pressure is increased, and respirations are slowed. This type is not serious; treatment is adrenalin or ephedrine sulfate by vein. The other type is the direct effect on the heart, either by arrest or fibrillation characterized by a sudden and rapid decline in blood pressure, a pulse that is rapid, gradually getting weaker and weaker, with shallow respirations. The treatment is directed at restoring normal cardiac rhythm.

In thoracic surgery, more than any other branch of surgery, the patient should be studied from all clinical aspects before surgery is performed. The anesthetist and the surgeon must cooperate, and they must coordinate all possible facilities at hand to meet any emergency.

INTERNSHIPS OPEN IN PSYCHIATRIC HOSPITAL

At St. Elizabeth's Hospital, the federal institution for the treatment of mental disorders, Washington, D.C., fine opportunities for psychiatric residencies and rotating internships are open to recent graduates of medical schools. These residencies and internships rank among the best in the United States. The institution has 7,000 patients, including members of our armed forces who are casualties of the present war. In order that these men, as well as civilian patients, may receive adequate care and treatment, it is necessary to recruit a number of Junior Medical Officers.

The rotating internship consists of one year of rotating service including medicine, surgery, psychiatry, laboratory, pediatrics (affiliation), and obstetrics (affiliation). Applicants must be fourth-year students in a Class A medical school or they must have successfully completed their fourth year of study in a Class A medical school subsequent to December 31, 1935. The duties of Junior Medical Officer (Rotating Internship) are those of an intern assigned to medical, surgical, and laboratory services, and outpatient clinics.

A postgraduate internship of one year in psychiatry is offered to graduates of medicine who have already served an accredited internship. Applicants must have successfully completed their fourth year of study in a Class A medical school subsequent to December 31, 1932, and they must have the degree of either B.M. or M.D. In addition, they must have successfully completed an accredited rotating internship of at least one year, except that applications will be accepted from persons now serving such internship. The duties of Junior Medical Officer (Psychiatric Resident) are those of a resident in the diagnosis and treatment of mental patients.

It is possible that women may be utilized in these positions. Appointments to the above positions will be made at various times during the year as vacancies arise. The positions pay $2,000 a year (plus $433 overtime pay). There are no age limits for these positions. No written test is required. Persons now using their highest skills in war work should not apply. Appointments in federal positions are made in accordance with War Manpower Commission policies and employment stabilization plans.

Only female mosquitoes bite to suck blood; the males get all their nourishment from plant sap.—*Science News Letter*

In no profession does culture count for so much as in medicine, and no man needs it more than the general practitioner.—*Osler*

slight depression of the respiratory center and a slight lowering of the blood carbon dioxide. Criticism of this technic has been that the cessation of respiration would remove the greatest safeguard against overdosage and that the anesthetist would be at a loss as to depth of anesthesia. This would apply to those not familiar with the method. The depth of anesthesia can be ascertained by any one of several procedures:

1. In light anesthesia, respirations will resume shortly after the discontinuance of this technic. Active respiratory efforts return as a result of an increased blood carbon dioxide.

2. Manual pressure on the anesthesia bag, necessary to inflate the lungs, is decreased during deep anesthesia and increased during the light plane.

3. The depth can be judged from the patient's behavior during induction and through the course of the operation.

4. Eye signs are often of value, especially if followed from the start.

5. Variations of pulse rate will usually indicate the plane of anesthesia.

The advantages of this method are that the dangers of an open pneumothorax are abolished. Efficient tidal exchange can be accomplished. Adequate oxygenation with removal of carbon dioxide is insured. The diaphragm is motionless and the thoracic musculature is at rest.

Postoperative Management.—The clearance of secretions of the tracheobronchial tree, the early return of an active cough reflex, cortical sedation without central depression, and oxygen therapy are the essential points in the postoperative treatment.

The anesthesia should be gradually lightened toward the close of the surgical procedure and the application of the dressings. The patient is then turned on his back, gently.

Extubation is done as soon as there is a return of reflexes. The suction catheter is left in place and withdrawn along with the endotracheal tube.

Sedation is usually necessary shortly after the return of consciousness. We have found that small doses of apomorphine will allay excitement and restlessness without depressing respirations or the cough reflex; $^1/_{40}$ to $^1/_{50}$ grain is administered intramuscularly before the patient leaves the operating room; morphia then is not necessary for the immediate postoperative period. Oxygen therapy, which is started after the anesthetic is finished, is continued in the ward.

Summary

The problems of anesthesia for thoracic surgery have been discussed. Attention has been focused upon the effects of pathologic or mechanical disturbances, on pulmonary function, the limitations of the head-down position, endobronchial aspiration of secretions, the utilization of technics to provide a normal exchange of the physiologic gases, and the immediate postoperative care of the patient. These observations are intended to stress the importance of the anesthetic management of the patient.

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Discussion

Dr. L. J. Pico, *Brooklyn*—I wish to congratulate Dr. Etsten on his excellent presentation of his paper.

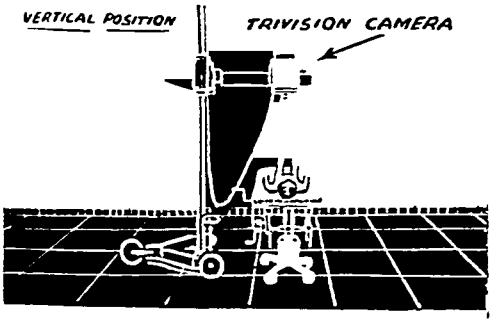
Anesthesia for thoracic surgery presents many problems which are not encountered in any other branch of surgery. The majority of patients who undergo surgery are in a poor physical state, have a low vital capacity, and a secondary anemia. Any further increase in the already existing anoxemia is poorly tolerated.

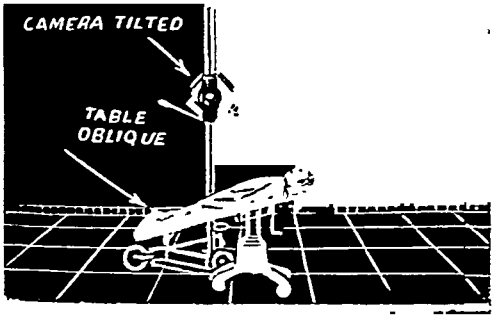
There are two important requirements of the anesthetist in thoracic surgery: (1) the prevention of anoxemia, and (2) removal of foreign material from the trachea and bronchi.

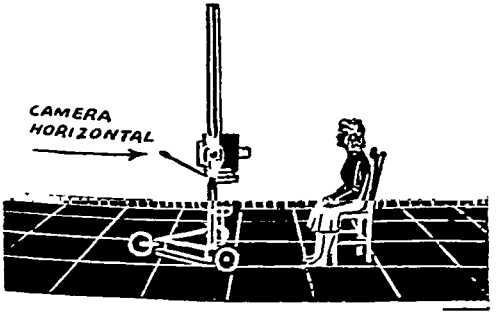
The aim of all pulmonary function tests is to supply evidence which will allow one to determine beforehand the functioning tissue that will take over the work of the collapsed tissue. I have had no experience with bronchospirometry. This procedure was introduced in 1932, and as yet not very many patients have been examined by this method, so that its reliability and clinical application are still to be determined. Bronchospirometry and other clinical pulmonary function tests will help to decide the cases for surgery, but to determine the anesthetic agent and technic, I believe, the anesthesist who is going to administer the anesthesia is the essential factor, regardless of the agent and the technic.

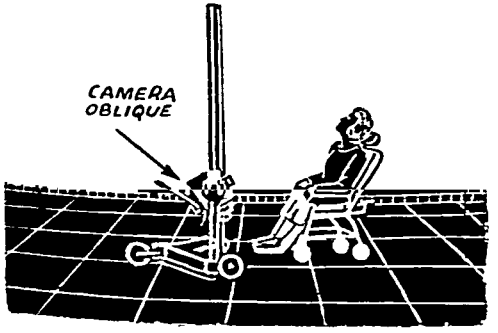
As for the postural status of the patient, the advantages of the head-down position to the extent of 30 degrees outweigh the disadvantages.

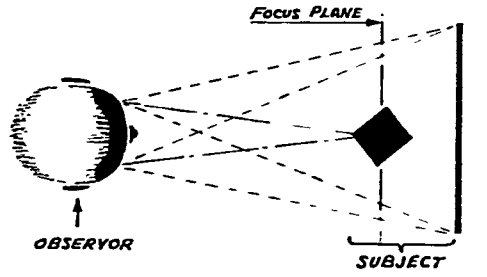
For intrapleural chest surgery, controlled respirations with cyclopropane endotracheal technic is the ideal system. The application of positive pressure in the sphere of thoracic surgery is essential. The object is not only to avoid lung collapse but also to support the mediastinum in order to avoid the dangerous mediastinal flutter. There are also dangers in giving intratracheal anesthesia from the use of too much pressure. The complications that may result are mediastinalem physema and pneumothorax. According to Coryllos, an intrabronchial pressure of 50 mm. of mercury is necessary to produce a rupture of the visceral pleura. In view of the above data, re-expansion of the remaining lung tissue following intrathoracic operations should not be by marked distention with positive pressure but by aspiration

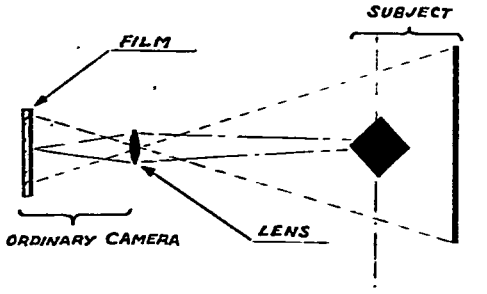


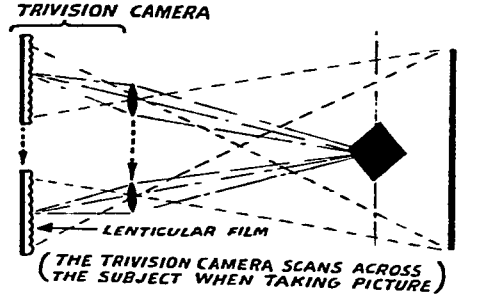


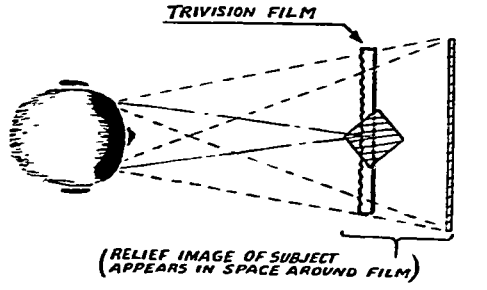












imposed grid may be translated into exact depth measurements.

The height, width, and depth of a subject are accurately recorded in a trivision picture. Should the image be smaller or larger than the subject, the three dimensions are proportionately smaller or larger. A measure of the height or width of the image on the film corresponds to the measurement of the height or width of its subject on the principal plane of focus.

The measurement of depth involves a recognition of the principle that objects in three dimensions are displaced with relation to each other when the viewpoint is shifted. The visible dis-

THREE NEW TOOLS OF SCIENCE

DOUGLAS F. WINNEK, Mt. Vernon, New York

OUT over the Pacific a new aerial camera is making three-dimensional photographs for Uncle Sam. Down in the new Naval Medical Center at Bethesda, Maryland, the first trivision x-ray camera is producing films that reveal the exact depth of structures and foreign objects. In the operating suite of the Baptist Hospital in Boston, the Lahey Clinic is producing the first trivision clinical pictures in depth, color, and motion.

These three cameras are experimental, but the pictures produced in them give a fair idea of what may be expected from trivision.

Trivision is a new form of stereoscopic photography. Instead of taking the customary binocular pair of stereographs and viewing them through oculars, we produce a composite stereograph on a single film, with a single exposure.

The new technic requires the use of a scanning camera and a "lenticulated" film. The camera is a simple box, with an ordinary lens fixed to its front panel and a sliding film carrier on its back. During the exposure, this camera slides laterally across the subject. As it slides, the lens travels parallel to the subject plane in focus, and the mechanized film carrier travels relatively faster to keep the continuous panoramic series of subject glimpses centered on the film.

The new film is, in reality, ordinary film that has been embossed on its base side, the face opposite the emulsion layer, with microscopically small lens ridges or lenticulations. These ridges, simple plano-convex cylindric lenses, number approximately 200 per linear inch. The film embossing procedure does not alter the speed or thickness of the film. It simply changes the smooth cellulose surface to an optical surface of definite curvatures.

This lenticulated film is placed ridged side to the camera lens when the exposure is made. During the camera excursion, each successive glimpse of the subject is projected into the lenticular film surface, where it is reduced to a multiplicity of contracted picture elements, running up and down on the film, one element for each ridge. As the camera continues its scan, the successive picture records are isolated in such a manner as to produce a composite stereograph. It may be said that no less than 20 independent views of the subject are recorded. In fact, the camera lens is opened at the beginning of its scan and closed at the end so that the picture is a continuous exposure.

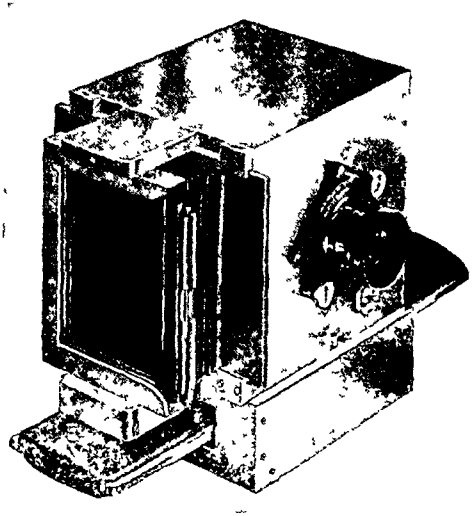
The procedure is simple. The camera is automatic. One simply places the film in its holder and presses the button.

The new picture is processed in ordinary solutions with ordinary technic. As soon as it may be seen in ordinary light, the observer, upon viewing it through the lenticular side, will see the subject portrayed in natural three dimensions. If color film has been employed, the three-dimensional image appears in natural hues.

The observer may, upon shifting his head to one side or the other, actually see around and beyond objects—exactly as in nature.

The trivision picture is a stereoscopic panorama of the subject photographed. Unlike stereoscopic views requiring viewing apparatus or oculars, the trivision pictures present a stereorama. I consider this feature an invaluable aid to the diagnostician, for he is now able to look around bones and structures.

The "movement perspective," involving the relative movement of near and far objects, has long been recognized as an invaluable cue in depth perception. The trivision stereorama enables one to make depth measurements directly from photographs, since, by formula, the movement of image planes against a stationary super-



Pictures made with this camera portray subjects in natural depth, color, and motion.

Read by invitation at the Annual Meeting of the Medical Society of the State of New York, New York City, April 29, 1942.

Clinicopathologic Conferences

Departments of Medicine and Pathology, New York Post-Graduate Medical School and Hospital, Columbia University

Conducted by: Herman O. Mosenthal, M.D., and Maurice N. Richter, M.D.

Date: April 20, 1943

History

Case J73816

Dr. Woodbury Perkins: A 72-year-old white female was admitted February 4, 1943, with a chief complaint of stupor of six hours' duration. About six hours before admission, the patient was suddenly seized with a severe occipital headache, following which there was loss of consciousness and loss of sphincteric control. It was noted that she could not move her left arm or left leg. The past history was negative except for a long series of urinary tract complaints which dated back to 1926. At that time she first had an acute pain in the back. Our only information concerning this episode was that a ureteral dilatation was done. She was apparently well until 1930 when she was first seen by a staff member of this hospital because of backache. The urine showed no abnormal findings. A retrograde pyelogram revealed a narrow and constricted ureteropelvic junction on the right side with a right hydronephrosis. The left kidney was not examined but there was apparently normal function on this side. The presence of hypertension is said to have been discovered two years ago by the patient's son, a physician.

Physical Examination.—The temperature was 100 F., pulse 90, respirations 20, blood pressure 240/120 mm. of mercury. The patient was disoriented, stuporous, and responded to questioning with thick, blurred speech, lying in bed with an obvious paresis of the left arm and leg. The pupils were equal and reacted to light and accommodation; fundi showed clearly outlined optic nerve heads; retinal arteries were narrow; no hemorrhages or exudates were seen. The mouth, ears, nose, and throat were negative. The neck showed moderate stiffness. The lungs were clear to percussion and auscultation. There was no enlargement of the heart; the sounds were good, with no murmurs and a regular sinus rhythm. Examination of the abdomen was negative; no masses were felt. The spinal examination was negative, with no costovertebral tenderness. Neurologic examination revealed a marked weakness of the left arm and leg, hyperactive reflexes on the left with a positive Babinski sign, and absent abdominal reflexes. General sensory examinations were normal on the right, but there was loss of pain and vibratory and muscle sensation on the left.

Clinical Course.—The patient remained stuporous but became more oriented on her second hospital day. She was afebrile until her third hospital day when she began to run a temperature of 101 F. On the fifth day this rose to 103 F. A spinal tap was done, yielding bloody fluid with 16,000 red blood cells per cubic ml. Two urine examinations showed specific gravities as high as 1.020, with 1 to 3 plus protein, 12 to 15 white cells but no red cells. The patient was given barbiturates as sedatives when necessary because of her restlessness. On her fifth hospital day the temperature and respirations began to rise. She became more comatose and died on the morning of the sixth hospital day.

Clinical Diagnosis.—Hypertension, arteriosclerosis, generalized, and rupture of an arterial branch of the circle of Willis.

Dr. Herman O. Mosenthal: This case presents two phases, one before the patient came to the hospital and the other subsequent to admission. Dr. Kenyon had charge of this patient before she came to the hospital and found some interesting facts which have an important bearing on her last illness.

Dr. Herbert R. Kenyon: This woman happened to be an old friend of mine. In 1926 when she was in Chicago she had an attack of backache with dysuria. She was cystoscoped at that time, and she had a ureteral dilatation. She was all right until 1930 when she had another attack of pain in the back associated with some dysuria. We cystoscoped her and made a pyelogram of the right kidney and found a stricture of the right ureteropelvic junction. Judging from the pyelogram and urinary findings she had an old infection. As she was an outpatient, the left side never was done. She had no other treatment and the pain subsided; the urinary symptoms disappeared. Between 1930 and her last illness there was no further symptomatology referable to the urinary tract. I lost track of her after 1930 until called to see her during the last illness. At the time her pyelogram was made, the blood

placement of any subject point against the superimposed grid may be read in millimeters. It is a direct measure of depth between the plane of the grid and the plane of the image point. Since the superimposed grid always appears at the principal plane of focus in the subject, *it is a "datum plane" that may be depended upon.*

The procedure is simple, direct, and accurate.

For convenience, a handy chart is provided with each camera, upon which may be found factor numbers for each object distance, camera scan, and focal length of lens employed. The factor number may be noted at the edge of the film by the photographer. When the diagnostician reads the film, he simply multiplies the visible displacement of the image point against the millimeter grid by the given factor. The result is the exact depth measurement.

I consider the direct measuring technic the second valuable contribution by trivision.

The trivision film records motion. Recently we took a picture of a set of meshed gears while they were in motion. When the picture was viewed, the gears actually moved when the viewpoint of the observer was shifted or when the film was rotated around a vertical central axis. Actions, such as the movement of a jaw, the twisting of the wrist, the tightening of the muscles, have been recorded on the lenticular film and the motion studied in three dimensions.

Since the camera scans the subject during an interval of several seconds' exposure, a continuous record of subject motion is recorded. This progression series is observed when the picture is moved before the eyes.

The resulting stimulation of successive image points along the retina at successive intervals of time causes this illusion of natural motion.

The unique feature is that the perception of depth, color, and apparent motion is achieved by means of a single trivision picture.

SPRAINED ANKLE RECOVERY HASTENED BY IMMEDIATE USE

Immediate and normal use of a sprained ankle and foot, almost irrespective of the type of local treatment, definitely hastens recovery, Lieut. Comdr. Paul E. McMaster, U.S.N.R., declares in the July 3 issue of the *Journal of the American Medical Association* in a report on his observations in more than 500 cases.

"Irrespective of the type of treatment," Dr. McMaster says, "patients who returned immediately to normal activity and used and moved the foot and ankle improved much more rapidly than those who did not.

"Injection of 2 per cent procaine hydrochloride solution into the injured ligaments, followed by normal activity, gave uniformly the best results. These patients, following complete elimination of pain and tenderness by injection, continued immediate use of the part, avoiding only especially strenuous activity, such as hard running or jumping."

As Dr. McMaster points out, ankle sprains may cause much disability, and often do, in military, industrial, and other activities. The patients discussed in his report were men in active military service, mostly in the late teens and twenties, and eight women, treated in the Orthopaedic Department of the United States Marine Corps Base Dispensary, San Diego, California. All degrees of sprain from minor to severe were seen, but in each case the condition was sufficient to cause the man to seek relief either immediately or within the first day or so.

X-rays of the injured ankles were made almost routinely. No cases of fracture, including sprain fracture, are included in Dr. McMaster's series. Any type of fracture would contraindicate the immediate use of the part involved.

Various types of treatment were used for comparison. Over 200 patients were strapped with adhesive tape, some of whom were sent immediately to duty, and the others were instructed to limit weight-bearing and protect the ankle either by complete bed rest or by use of crutches or cane. Bed rest without weight-bearing for a day or more, with initial cold applications and later hot to reduce swelling, was tried in 22 cases. Twenty-eight patients were given only an elastic bandage support, while 18 with mild to moderately severe sprains were given no treatment, and both latter groups were sent back to duty immediately.

More than 200 patients received local injections of procaine hydrochloride and with but few exceptions were sent to duty immediately.

The technic of injection of an anesthetic to suppress pain in the case of fractures, as used by Dr. McMaster, is not new. It was first reported by R. Leriche in 1928. Dr. McMaster describes the procedure used by him as follows: "The sprained ligaments indicated by tender points are determined by palpation. An antiseptic is then applied to the skin. Two per cent procaine hydrochloride solution . . . . is used routinely . . . . and the underlying injured ligament is injected. All tender points . . . . are injected. A search is then made for tender areas in other ligaments and these are each carefully injected until no tender or painful areas remain, either with palpation or ankle and foot motion. . . . . Next an elastic bandage is wrapped snugly around the ankle, and the patient is requested to walk around the room. If any pain is experienced, further injection is done. The patient is then returned to activity with instruction to use and move the foot and ankle normally, except for running and jumping. Also it is stressed that while sitting, as at a desk or table, the foot should be moved and not kept immobile in one position even for short periods. The elastic bandage is to be removed and rewrapped by the patient in one to two hours to prevent possible circulatory constriction. Daily and periodic return for check-up is required in all cases. . . . ."

Those inactivated, partially or completely, were disabled from a few days to two or three weeks.

present case shows a blood pressure of 240/120. The pulse pressure is very high, being 120. Usually when hypertension occurs as the result of renal disease, or because of what we term "essential hypertension," the pulse pressure is much lower. Consequently, one would be led to believe that in this patient there are a widespread thickening, loss of elasticity, and rigidity of the greater part of the arterial tree. However, the diastolic pressure is not so low as we would expect it to be if arteriosclerosis were the only factor bringing about an elevation of the blood pressure. Therefore, in addition to thinking of a diffuse arteriosclerosis in this patient we have to look for either an essential hypertension or one secondary to renal involvement. There are other causes for high blood pressure but these are the usual ones and I believe are all worth considering in the brief time at our command. We are justified in looking for a renal element and excluding that before putting this patient in the category of essential hypertension.

We have a history of ureteral dilatation to relieve backache and painful urination in 1926. Coupling this with the observations in 1930, we find that probably the cause of the trouble in the urinary tract was a stricture of the right ureter at the ureteropelvic junction associated with an atrophic kidney on that side. Dr. Kenyon has expressed the belief that this is a congenital lesion. From 1930 to the present time—that is, 1943—there were no symptoms referable to the urinary tract. It was noted that the blood pressure was normal in 1930 and as far as we know, an elevation of blood pressure has only existed for the past two years.

This patient, therefore, did suffer from a renal involvement that is commonly supposed to give rise to hypertension. This idea is based largely on the work of Goldblatt, who produced immediate hypertension in animals by clamping of a renal artery. The inconstancy of the association of such lesions is being stressed at the present time. Since the first wave of enthusiasm had passed in regard to unilateral nephrectomy and the possible cure of hypertension in these cases, a great deal of skepticism has arisen about the necessary relationship between kidney disease and a rise in blood pressure. More recently this has been forcibly expressed by Professor Homer Smith in a lecture at the New York Academy of Medicine, when he summarized the views of himself and his colleagues and found that only a very few of the cases reported in the literature bore out the idea that unilateral renal disease was responsible for a subsequent rise in blood pressure. He even went so far as to say that the data from the literature are impressive in their statistical demonstration that unilateral renal disease and surgical uropathology do not predispose to hypertension.

Our case history definitely shows that this patient had a marked involvement of the right kidney for many years, fourteen at least, without any elevation of blood pressure and that it was only at the end of that period that hypertension became manifest. The question arises: is it fair to believe that as far as its effect on blood pressure is concerned, such kidney disease may remain latent and very much later result in deranging the level of arterial tension? From some cases that we have followed over a period of years, I believe this can be answered in the affirmative.

It is very interesting to find that some of these individuals with what is apparently a congenital constriction of a ureter by aberrant blood vessels will have atrophy of the corresponding kidney and exhibit no changes in blood pressure for many years, except possibly an occasional excursion into the pathologically high range with a return to a normal blood pressure in the intervals. These variations in blood pressure are, in such persons, erroneously ascribed to nerve tension and not to the true cause. The actual facts come to light when, in later years, the blood pressure becomes permanently elevated. In one patient unilateral nephrectomy of such a kidney was followed by a drop to normal in the blood pressure lasting for over two years after the nephrectomy.

It would seem as though we could apply similar reasoning as to cause and effect in this case and that as far as the blood pressure was concerned, the atrophic kidney on the right side was dormant for very many years and then began to overcome the compensatory power of the body to regulate the tendency to hypertension and that a permanently elevated blood pressure developed. It is thoroughly appreciated that a high blood pressure, especially a high diastolic pressure, is going to entail certain changes within the body whatever the cause of the hypertension might be, and in this case the cerebral hemorrhage could in part be blamed on the strain the excessively high blood pressure imposed upon the blood vessels and in part on the arterial and arteriolar changes occurring in old age that in themselves predispose to hemorrhage or thrombosis of the cerebral blood vessels.

The diagnostic impression consequently would be:

Atrophy of the right kidney following on stricture of the right ureteropelvic junction.

Senile arteriosclerosis.

Hypertension which at autopsy should be manifest by more or less diffuse arteriosclerosis, probably not very extensive because hypertension had existed for only about two years, and by cardiac

pressure was normal. Following that I don't know what the course of her blood pressure was. As far as I was able to find out she had normal blood pressure until two years before her death. The main point of interest is the connection between hypertension developing late in life and a probable congenital lesion with a history of infection dating back to 1926 and confirmed in 1930. How much the renal obstruction contributed to the hypertension must remain speculative. The unfortunate thing was that the kidney was not removed in 1930. There was indication for surgical removal of the kidney. She was in the neighborhood of 60 and her son, a physician, was reluctant about having his mother operated on. There certainly is a long time interval, and as a rule these renal lesions cause hypertension in young individuals.

DR. MAURICE BRUGER: I expect the left side was all right?

DR. KENYON: She was an outpatient and we did not do a pyelogram of the other side. It was functionally normal at that time as indicated by excretion of dye. There was no obstruction in the lower urinary tract.

Discussion

DR. MATTHEW SHAPIRO: The following are the pertinent facts in the history and physical examination: first, an episode of "pain in the back" in 1926 at which time ureteral dilatation was done; second, another attack of "pain in the back" associated with dysuria, and pyelogram of the right kidney which revealed a stricture of the right ureteropelvic junction; third, the discovery of hypertension in 1941; fourth, the chain of symptoms for which the patient was admitted. Additional findings of interest were the spinal tap which presented blood, and the urine examination which showed 1 to 3 plus protein, 12 to 15 white blood cells and no red blood cells. Therefore, this patient presented a history of urinary infection which had been present for some time; a right hydronephrosis, and subsequently the development of hypertension from which the terminal chain of events occurred. What, if any, were the relationships between the abnormal renal state and the development of hypertension some years later?

Some years ago, Kimmelstiel and Wilson showed that changes in the glomeruli take place in a great number of patients with hydronephrosis and that these changes are of varied types. As the disease progresses, vascular changes in the kidneys occur. The almost constant finding of renal arteriolar disease in hypertensive patients who die as a result of renal failure or vascular complications such as cerebral hemorrhage has led to the belief that increased peripheral resistance to blood flow offered by generalized arteriolar disease, especially in the kidneys, is the cause of hypertension. A different school of thought is that arteriolar disease is secondary to hypertension, the cause of which has not yet been determined. In the *Journal* of the American Medical Association for April 17, 1943, Castleman and Smithwick report the results of renal biopsies performed on 100 hypertensive patients and correlate the degree of vascular disease with the hypertensive state. The most striking result was the finding of a high percentage of renal biopsies in which there was none or only minimal vascular disease. Twenty-eight per cent, and possibly 53 per cent, of their cases showed renal vascular systems so slightly damaged that it seemed unlikely that the blood flow could have been embarrassed sufficiently to have been the one factor responsible for the hypertension. The inference from their work could well be that a state of hypertension not infrequently exists in which evidence of renal vascular disease is either absent or is insufficient to explain the elevated blood pressure. There must be in many cases other factors primarily responsible for the hypertensive state which precede the appearance of renal vascular disease. It has been fairly well established that hypertension of long duration produces arteriolar sclerosis. The proof is that in most patients with a long history of hypertension, arteriolar sclerosis is found in other organs such as the pancreas, intestines, and adrenals.

In conclusion, may I point out that the observations of Castleman and Smithwick are not concomitant with the concept that renal ischemia due to pre-existing renal vascular disease is the cause of essential hypertension in man.

DR. MOSENTHAL: This story throws us right into the middle of the arguments that have been going on for more than a generation regarding hypertension, its causes and its effects.

In a woman, aged 72, who is well into the older age group, a rise of blood pressure might occur that is inevitable with advancing years. The reason for such a rise in arterial tension is that the larger arteries become sclerosed, lose their elasticity, and have a mechanical effect upon the contained blood similar to that of a rigid piping system. The result is that the systolic pressure rises and because of lack of elasticity in the arterial walls they fail to exert pressure upon the contained blood when cardiac systole ceases and, consequently, the diastolic pressure is low. Such hypertensive readings in old persons may show a systolic pressure well above 200, the diastolic remaining at a level of about 80. Such blood pressure readings have been regarded as within normal range for the older individual. The

present case shows a blood pressure of 240/120. The pulse pressure is very high, being 120. Usually when hypertension occurs as the result of renal disease, or because of what we term "essential hypertension," the pulse pressure is much lower. Consequently, one would be led to believe that in this patient there are a widespread thickening, loss of elasticity, and rigidity of the greater part of the arterial tree. However, the diastolic pressure is not so low as we would expect it to be if arteriosclerosis were the only factor bringing about an elevation of the blood pressure. Therefore, in addition to thinking of a diffuse arteriosclerosis in this patient we have to look for either an essential hypertension or one secondary to renal involvement. There are other causes for high blood pressure but these are the usual ones and I believe are all worth considering in the brief time at our command. We are justified in looking for a renal element and excluding that before putting this patient in the category of essential hypertension.

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Senile arteriosclerosis.

Hypertension which at autopsy should be manifest by more or less diffuse arteriosclerosis, probably not very extensive because hypertension had existed for only about two years, and by cardiac

hypertrophy which is inevitable if hypertension has existed for more than a few months.

Cause of death would be a hemorrhage or thrombosis of a cerebral artery resulting from the combined effects of senile arteriosclerosis and hypertension.

Pathology

DR. MAURICE N. RICHTER: The hemorrhage in the brain was on the right side, and involved mainly the right temporal lobe. There was no aneurysm of the circle of Willis, although the vessels were sclerotic in this area. The other gross changes were not of special interest except for the kidneys. The right kidney was small and markedly deformed. It weighed 85 Gm. and showed the typical features of hydronephrotic atrophy and pyelonephritis, with markedly dilated pelvis and calices and reduction of cortical tissue to a thin rim. Flat depressed scars were present on the surface.

The left kidney weighed 135 Gm. Several small scars were present on the surface, but the pelvis was not dilated.

Rather marked arteriosclerosis was present in the other parts of the body, and there was a uniform aneurysm of the aorta, seen above the bifurcation.

Microscopically, the changes in the right kidney were those commonly found in chronic pyelonephritis. There was atrophy of the tubules, many of which contained hyaline casts. In the scarred areas, the glomeruli were hyalinized, and the surrounding tissue infiltrated with lymphocytes. The changes correspond with those reported by Weiss and Parker.

The most interesting features were the changes that were observed in the opposite kidney. Here the alterations were mainly in the glomeruli, some of which showed only increased numbers of leukocytes, others of which showed alterations in the glomerular capillaries. This took the form of hyaline changes in many capillaries, but occasionally also of focal capillary necrosis.

A number of years ago Kimmelstiel and Wilson pointed out that glomerular changes of this type occurred in many patients with hydronephrosis. This raises the question of the relationship of hypertension to vascular lesions, not only of the common forms of arteriolarsclerosis but also to those associated with more acute glomerulitis.

It is of further interest that the disseminated hyaline change in arterioles commonly associated with hypertension was not present. There was, however, generalized involvement of the larger arteries. There is also hyalinization of a number of the pancreatic islets.

Anatomic Diagnoses

Generalized arteriosclerosis.
Arteriosclerosis of aorta.
Aneurysm of abdominal aorta due to arteriosclerosis.
Arteriosclerosis of cerebral arteries.
Sclerosis of coronary arteries.
Arterio- and arteriolosclerosis of kidneys.
Hydronephrosis, right.
CHRONIC PYELONEPHRITIS, RIGHT.
Hypertension, clinical.
Arteriolar necrosis of glomerular capillaries.
Hypertrophy of heart.
Cerebral hemorrhage, right temporal lobe.
Passive hyperemia of lung, liver, and spleen.
Lobular pneumonia, left lower lobe.
Obsolete operation—hysterectomy and bilateral salpingo-oophorectomy.
Fibrous peritoneal adhesions.
Congenital malformation of heart—patent foramen ovale.
Tubercles of lung, healed, right lower lobe.
Hyalinization of islands of Langerhans.

PHARMACISTS IN DEMAND

The number of licensed pharmacists and students of pharmacy is "dangerously low," Dr. Charles W. Ballard, dean of Columbia University's College of Pharmacy, has declared. The shortage of trained men threatens both the "corner drug store" and the entire industry, he asserted.

The armed forces also are experiencing a shortage of pharmacists, the dean said. Under a new Selective Service order, however, students who will complete their training within two years may be deferred, he pointed out. Accelerated school programs are helping students to train in compliance with this ruling. Columbia's own wartime program reduces the regular four-year course to two years and eight months.

NURSE GROUP TO WEAR CROSS OF MALTA

Members of the new United States Cadet Nurse Corps will wear on the sleeves of their uniforms the Cross of Malta, a symbol which dates back to the Crusades, when those dedicated to tending the ill adopted the symbol.

On their caps and lapels the cadet nurses will wear the insigne of the Public Health Service, a horizontal fouled anchor with a winged caduceus, the staff of Mercury, upright in the center. The insigne relates to the earliest obligation of the Public Health Service—the medical care of sick and injured seamen. The fouled anchor represents the seamen in difficulty. The caduceus, the symbol of the messenger of the gods, is also the ancient symbol of the physician.

Diagnosis

CLINICOPATHOLOGIC CONFERENCES

FOURTH MEDICAL DIVISION OF BELLEVUE HOSPITAL

Date: September 16, 1943
Conducted by: Dr. Harry A. Solomon

DR. MARY B. FINCK: The patient was a 43-year-old white seaman whose first admission to Bellevue Hospital was to the Psychiatric Service in September, 1942, for alcoholism and right upper lobe pneumonia. At that time he gave a history of chronic cough with occasional small hemoptyses, fever and night sweats, and a loss of 30 to 40 pounds in six months. On examination, in addition to the signs of consolidation of the right upper lobe, the heart was found to be of normal size with no murmurs, the liver was enlarged four fingerbreadths below the costal margin, and the spleen was not palpable. The pneumonia cleared on treatment with sulfadiazine, and the patient was discharged after one month's hospitalization.

The patient's second admission was to the Skin Service in December, 1942, when he gave a history of generalized pustular eruption, ulcer of the right leg, fever, and vomiting for one week prior to admission. On examination, the heart again was noted to be normal, but the liver and spleen were markedly enlarged. The urine showed 2 plus albumin and a few red blood cells. The blood pressure was 160/90. The patient ran an irregular febrile course and was discharged in a month.

The first admission to the Medical Service was on March 3, 1943, with complaints of swelling and tenderness of the left leg, continued nightly fever to 101 F., and weight loss, with occasional pain and swelling of the wrists and elbows, and diffuse headache, all of one month's duration.

Past history revealed that the patient had had a chancre twenty years before, which was treated with salvarsan. He had been a morphine addict, cured for ten years, and had also been a chronic alcoholic for many years. Fifteen years before admission, the patient had had malaria, which was treated with quinine.

Physical examination on admission revealed a pale, poorly nourished, chronically ill, white man. The temperature was 102 F.; pulse, 80; respirations, 20; and blood pressure, 200/100. The fundi showed a neuro-retinopathy with marked arterio-venous compression and slight blurring of the disk margins. The chest was clear except for occasional crackling rales at the bases. The heart was enlarged to the left, with regular rhythm. There was a systolic thrill at the base and a short presystolic thrill at the apex. There was a loud, rough systolic murmur and distinct diastolic murmur at the base, as well as a short presystolic murmur and a systolic murmur at the apex. Examination of the abdomen showed the liver to be four fingerbreadths below the costal margin, firm, not tender, and smooth; the spleen was three fingerbreadths below the costal margin and slightly tender. The left leg showed marked edema, with heat, tenderness, and a questionable cord in the left calf. There was minimal edema of the right leg.

Laboratory Data.—The red blood count was 4,060,000 with 11.5 Gm. of hemoglobin; the white blood count was 12,000 with 47 per cent polymorphonuclears, 45 per cent lymphocytes, and 8 per cent monocytes. The urine showed a concentration to 1.015 with 1 to 2 plus albumin and a moderate number of red and white blood cells on repeated examinations. The blood Wassermann test was negative, but the Kahn test was 4 plus. The erythrocyte sedimentation rate was 4 mm./hr.; the blood nonprotein nitrogen, 29 mg. per cent; icteric index, 6; cholesterol, 95 mg. per cent, and cholesterol esters, 50 mg. per cent. The serum albumin-globulin ratio was 3.7/5.5 Gm. per cent. The Congo red test showed a 100 per cent excretion in one hour. The blood agglutinations for typhoid, paratyphoid, brucellosis, and infectious mononucleosis were negative. The Frei test was negative. Repeat chemistries three weeks after admission showed a serum albumin-globulin ratio of 3.7/4.8 Gm. per cent; blood cholesterol, 133 mg. per cent, cholesterol ester, 66 mg. per cent; erythrocyte sedimentation rate, 26 mm./hr. The stool was negative for ova and parasites. Five blood cultures were taken, four of which were negative and one positive for gamma streptococcus. An electrocardiogram showed marked left axis deviation, and an x-ray of the chest showed moderate generalized cardiac enlargement.

Course.—The patient ran an irregular fever with occasional spikes to 102 and 103 F. The edema of the left leg gradually subsided. An intravenous pyelogram done on April 3, 1943, was reported as showing a large left kidney, but this was not substantiated by retrograde pyelography

or peri-renal air insufflation. The patient was discharged on May 7, 1943, improved.

The patient was again admitted to the Medical Service on June 16, 1943, with complaints of severe, constant pain in the left calf, intermittent pain radiating down the back of the left leg, swelling of the abdomen, vomiting of black material, and the passage of tarry stools. Inquiry revealed the presence of exertional dyspnea and orthopnea of a month's duration. Examination showed a very pale, emaciated white man with a temperature of 100 F.; pulse, 90; respirations, 24; and blood pressure, 156/82. The fundi showed several small fresh hemorrhages; there was a marginal glossitis of the tongue. Examination of the chest disclosed a few rhonchi at both apices; the heart was markedly enlarged, with regular sinus rhythm; there was a rough systolic murmur at the apex and a soft diastolic murmur at the base.

The abdomen was distended, with shifting dullness in the flanks. Both the liver and spleen were palpable five fingerbreadths below the costal margin. The spleen was markedly tender. The left calf was tender, hot, and swollen, and there was a positive Homan's sign on the left, with moderate edema of both ankles.

Laboratory Data.—The red blood count was 1,200,000 with 4 Gm. of hemoglobin; the leukocyte count was 4,800 with 58 per cent polymorphonuclears, 36 per cent lymphocytes, and 6 per cent monocytes. The platelet count was 80,000. Urine showed 3 plus albumin, with a few white and red blood cells. Repeated stool examinations were 4 plus to the guaiac test. The blood nonprotein nitrogen was 40 mg. per cent; icteric index, 7; serum albumin-globulin ratio, 2.2/5.8 Gm. per cent. The cephalin flocculation test was strongly positive. The van den Bergh test gave a direct delayed reaction. The prothrombin time was normal. On June 30 the red blood count had risen to 2,100,000 with 5.8 Gm. of hemoglobin. The serum albumin-globulin ratio was 2.9/1.4 Gm. per cent and the sulfadiazine level was 29.6 mg. per cent. On July 19 the red blood count was 2,340,000 with hemoglobin of 10 Gm.; the leukocyte count was 7,900 with 74 per cent polymorphonuclears and 26 per cent lymphocytes. The blood nonprotein nitrogen was 60 mg. per cent; creatinine, 2.7 mg. per cent; the icteric index was 10; and the albumin-globulin ratio, 2.04/4.1 Gm. per cent. The prothrombin time was again normal. An electrocardiogram showed marked left axis deviation. A chest plate showed marked enlargement of the heart to the right and left. Seven blood cultures were taken, the first four of which showed no growth and the last three, taken on July 7, July 14, and July 21, revealed gram-positive cocci of unidentified strain.

Course.—Temperature showed irregular spiking from 102 to 104 F. Three transfusions were given, with some improvement in the anemia. The patient was digitalized and a course of 33 Gm. of sulfadiazine was given. Paracenteses done on June 22 and July 12 yielded about 2,200 cc. of clear yellow fluid on each tap. On June 20 a petechia was noted in the left lower eyelid; on June 21 purpuric spots appeared over both lower extremities. On July 10 hemorrhagic areas appeared over the whole body. Edema of the legs disappeared on bed rest, but the swelling of the left calf increased and remained markedly tender. Aspiration of the swelling yielded 1.5 cc. of serosanguineous fluid. On July 22 a diastolic gallop rhythm was noted. The patient's septic state became progressively worse, and he died on July 23, 1943.

Discussion

DR. HARRY A. SOLOMON: From glancing over the checkered career of this patient it is evident that we are dealing with a typical "Bellevue case," with all its clinical and pathologic implications, a species that in years gone by made up a goodly portion of Bellevue's population and is still common enough today.

As a seaman the patient contracted malaria and syphilis, became a drug addict and an alcoholic degenerate. Characteristically enough, his first introduction to Bellevue was on the Psychiatric Service, with "alcoholic pneumonia," where pulmonary tuberculosis was suspected. Subsequently he was admitted to the Surgical Service for fractures, to the Dermatological Service for "Bellevue legs," meaning ulcers a pyoderma, and, finally, there were several adm sions to the Medical Service.

On his first admission to the Medical Servi the patient still had the enlargement of the liv and spleen that had been previously noted a because this was asymptomatic and there was background of alcoholism and nutritional d ficiency, this could be classified as the fatty hypertrophic stage of Laennec's cirrhosis though there were also other possible factor such as malaria and syphilis. Signs of thromb phlebitis seemed to explain the marked eden of the left leg. Chronic glomerular nephriti evidenced by proteinuria, sediment findings, ren function tests, and hypertension, was also foun on the first medical admission and seems best ex plained as toxic nephritis produced by pyoderm or subacute glomerular nephritis, although vascu lar, malarial, or syphilitic nephritis were ver remote possibilities. Regardless of whateve other factors were present to account for th

heart condition, the presence of an aortic regurgitation murmur and a luetic infection about twenty years previously favored the latter etiology. On the basis of a septic state, heart murmur, and positive blood culture containing a growth of a gamma streptococcus, subacute bacterial endocarditis could be more than suspected. A course of sulfadiazine therapy seemed to control the infective state before the patient was discharged.

In the six weeks' interval between the previous and last medical admission, the patient's condition progressed rapidly downhill. He was admitted with ascites, which reaccumulated rapidly after repeated tappings, and the ascitic fluid was highly cellular. There were massive hematemesis and tarry stools; the red blood cell count had dropped to a little above one million. The liver, however, was still five fingerbreadths down, and the spleen was larger and very painful and tender. This rapidly developing portal decompensation was evidently not due to contraction of the liver. No venous hum was heard. With the toxic state and fever, thrombosis of the portal vein seemed a reasonable inference although an intrahepatic condition like primary carcinoma of the liver or infection could not be disregarded entirely. The left leg had become so greatly swollen and tense, so exquisitely painful and tender, and so markedly discolored that the condition could hardly have been produced even by an acute obstruction of a large, deep vein in the pelvis, and hemorrhage because of a ruptured vein or mycotic aneurysm seemed likely. Aspiration, however, yielded only a small amount of sero-sanguineous fluid, which was not cultured. By now the clinical picture of subacute bacterial endocarditis was fully developed. White-centered petechiae were noted in the conjunctivae and retinae; purpuric lesions were widespread; the septic state persisted at a higher tempo; the spleen was painful and tender, as with infarction; and the last three blood cultures yielded gram-positive cocci which were not definitely identified. It is now generally accepted, I believe, that Streptococcus viridans implantation on luetic aortic valves is not as uncommon as it was formerly believed to be, but because the murmurs did not change under observation and the blood cultures were scarce, it is possible that the vegetations will be found on the tricuspid valve. In view of the possible infection in the portal vein, one may be pardoned for suggesting that multiple abscesses in the liver opening into the hepatic veins may have been the source of the bacteremia.

There are many other clinical sidelights that might be briefly mentioned at this time. The gastrointestinal hemorrhage was sudden and severe and coincided with the appearance of ascites so that ruptured esophageal or gastric veins seemed the best explanation. However, bleeding due to thrombocytopenia of splenic dysfunction cannot be disregarded. A word might be said about the hyperglobulinemia which was present from the start and which was attributed to a compensatory mechanism in the liver or to renal disease or to a chronic infectional state, there being no evidence of multiple myeloma or bone destruction. During the period of blood loss, the ser-globulin fell more than the ser-albumin, but when the blood improved the hyperglobulinemia reappeared.

Clinical Findings.—In summary, then, the clinical findings could be tabulated as follows:

1. Laennec's cirrhosis of the liver—hypertrophic stage
   (*a*) Thrombosis of portal vein
   (*b*) Thrombocytopenia
   (*c*) Ruptured esophageal or gastric varices
2. Deep thrombophlebitis with hematoma of left leg, due to ruptured vein or ruptured mycotic aneurysm
3. Toxic glomerular nephritis, due to pyoderma or subacute bacterial endocarditis
4. Syphilitic and hypertensive heart disease; enlarged heart; aortic regurgitation; congestive failure
5. Subacute bacterial endocarditis, due to Streptococcus viridans (not fully identified) superimposed on syphilitic aortic valve or tricuspid valve
6. Hyperglobulinemia
7. Subclinical possibilities:
   (*a*) Pyelophlebitis with multiple abscesses of liver and bacteremia
   (*b*) Primary carcinoma of liver

DR. CHARLES H. NAMMACK: I think that the engrafting of subacute bacterial endocarditis upon luetic heart disease is not rare. We are accustomed to associating this condition with rheumatic heart, probably because the incidence of the latter is so much higher than luetic or congenital heart disease. The marked discrepancy between the negative Wassermann and the 4 plus Kahn reactions is interesting, but I do not know the explanation.

DR. ARNOLD KOFFLER: In discussing luetic heart disease, I should like to draw your attention to the case we discussed at this conference about a year ago. This was proved at autopsy to be a luetic heart with engrafted subacute bacterial endocarditis. A review of the literature at that time indicated that this was a comparatively rare occurrence. In this particular case, why we should assume that this was a luetic heart, since one year ago the heart was considered normal, I do not know. The marked enlargement

of the heart would have to be explained on the basis of deformity of the valve due to endocarditis rather than to lues. The etiology is, in my opinion, obscure. The diagnosis of thrombophlebitis in the leg with a subsequent blood stream invasion, atlhough extremely rare, is a possibility in this case, particularly since the organism was not identified definitely. Streptococcus viridans may be difficult to culture at times, but, once it is cultured, identifying of the organism is no longer a difficult task.

DR. MAX TRUBEK: Because of the tenderness, it is quite likely that the patient may have had splenic infarctions. From the clinical course, I do not think that liver abscess needs to be considered. The aortic diastolic murmur with the evidence of progressive cardiac enlargement would lead one to suspect luetic aortitis with superimposed ulcerative endocarditis. The nephritis was apparently of a toxic origin. The high sulfadiazine level may well have been due to failure of excretion of the drug by damaged kidneys. The purpuric manifestations may have been the result of thrombocytopenia secondary to the nephritis.

DR. HARRY A. SOLOMON: Since the aortic murmur apparently was not changing in character when the positive culture was obtained on the first admission, it is possible that there was some other focus of infection feeding the blood stream.

DR. MAX TRUBEK: I believe that there was a change in the character of the murmur, indicating a progressive destruction of the aortic valve.

DR. MAXWELL L. GELFAND: When I first saw this patient, there were four negative blood cultures. With these clinical findings—i.e., continuous pyrexia and leukopenia, hepato-splenomegaly, hyperglobulinemia, and positive globulin precipitation test—I postulated that he may have had some tropical disease such as kala-azar or schistosomiasis because of his travels as a seaman. However, when the positive blood culture came through, it was obvious that we were dealing with a subacute bacterial endocarditis. On the patient's very first admission to the Psychiatric Service, physical examination did not reveal the presence of any murmurs. It is not fair to assume that luetic heart disease developed within a period of one year, as Dr. Koffler pointed out. On his first admission to the Medical Service, a diastolic murmur at the aortic area was the first to present itself. Because of that, the possibility of a congenital bicuspid aortic valve must be considered.

Presentation of Pathology

DR. ROBERT POPPITI: At necropsy the notable external findings were pitting edema of both ankles and swelling of the left calf. On opening the body, there was no free fluid in either pleural sac, while the peritoneal cavity contained 1,500 cc. of clear amber-colored fluid. The heart was enlarged because of hypertrophy and dilatation, and it weighed 600 Gm. There was nothing unusual noted about the tricuspid, pulmonic, or mitral valves, but in the aortic valve there was a congenital bicuspid deformity. On the surfaces of both aortic cusps were large, green, friable, cauliflower-like vegetations. These were more prominent on the anterior cusp. The posterior leaflet was deeply ulcerated. The aorta was normal. Both lungs were moderately enlarged because of congestion and edema. The liver was large, weighing 2,100 Gm. Its external surface presented a pink, irregularly granular appearance, and, on section, one noted a disturbance in the normal gross architecture with an increase in the fibrous tissue. The pancreas and both adrenals were normal. The spleen was enlarged, weighing 700 Gm. Two large fresh infarcts were seen which involved the pulp and capsule. Both kidneys were enlarged and weighed 300 Gm. each. Their capsules stripped easily, revealing smooth brown surfaces. There were no hemorrhages noted, and the cut surfaces presented no unusual changes. The remainder of the genitourinary system was normal, as was the gastrointestinal tract. Two centimeters from the head of the tibia, the left popliteal artery was enlarged into an aneurysmal mass measuring about 5 cm. in length. Its wall was thin and hemorrhagic, and its lumen was filled with a recent thrombus. There was an extravasation of blood between the soleus and gastrocnemius muscles over a distance of 15 cm. Nothing of note was observed in the brain.

Microscopic Findings.—Section of the aortic valve showed changes consistent with a diagnosis of subacute bacterial valvulitis. The cusp was irregularly thickened and consisted of hyalinized fibrous tissue. Adhering everywhere to the surface, which was ulcerated, was a large mass of thrombotic material containing clumps of bacteria. There was no vascularization of the cusps.

Sections of the liver revealed fat vacuoles in many of the liver cells. The fibrous tissue was markedly increased, dividing the parenchyma into irregular lobules foreign to the natural architecture of this organ.

Sections of the kidneys showed changes in all the glomeruli. These structures were much larger than average. The capillary endothelial cells were swollen and prominent, rendering the capillary tufts bloodless. In a few of the glomeruli, the cells of the parietal capsular epithelium were swollen. In these, Bowman's

space contained polymorphonuclear leukocytes and a few lymphocytes. No adhesions were seen. Focal embolic lesions were absent. Many of the convoluted tubules were distended with red blood cells.

Sections through the aneurysmal sac showed marked thinning of the wall of the popliteal artery with calcium deposits. A thrombus was seen within the lumen.

Anatomic Diagnoses

Congenital bicuspid aortic valve
Subacute bacterial aortic valvulitis—Streptococcus viridans
Left ventricular hypertrophy and dilatation
Congestion and edema of the lungs
Portal cirrhosis of liver
Splenic infarcts, recent
Acute diffuse glomerulonephritis
Ruptured mycotic aneurysm of popliteal artery

Comments

This case clearly illustrated again the tendency of a congenital valve to become the locus of a superimposed bacterial infection. A diagnosis of subacute bacterial endocarditis was made, with some question as to the underlying cardiac disease. In the absence of a rheumatic history and the relatively short clinical manifestations of aortic insufficiency, the diagnosis of underlying congenital heart disease should have been the most likely one.

Here, as in most cases of subacute bacterial endocarditis, regardless of the underlying cardiac disease, embolic phenomena were observed in the form of infarcts in the spleen and in the formation of a mycotic aneurysm in the popliteal artery. The former is common, the latter uncommon.

The usual renal lesion, when it is present, is a focal embolic glomerulo-nephritis. In this instance, however, there was an acute diffuse glomerulo-nephritis, a lesion which would account not only for the nitrogen retention but also for the albumin and red blood cells in the urine.

Complicating the picture were the ascites, enlarged liver, hematemesis, and reversal of the albumin-globulin ratio, which can all be explained on the basis of portal cirrhosis.

MORE STUDY OF HEREDITY OF HUMAN CANCER URGED

Pointing out that the study of the heredity of human cancer has lagged, at least in the United States, the *Journal of the American Medical Association* for July 3 declares that:

"The uncertainty regarding hereditary factors in the major kinds of human cancer should be ended. This can be done only by the use of data based on human material. . . .

"Students of the natural history of cancer in man were early impressed by the possibility that a hereditary factor might exist in its causation. The occurrence of [illegible] ers, often of rare types, in c[illegible] called cancer families, the [illegible] in time of occurrence of tumors in identical or monochorial [coming from single egg] twins, the racial peculiarities in susceptibility and resistance to some kinds of cancer and the tendency for some persons to develop more than one primary tumor, seen especially in those who had been cured of one cancer, were suggestive of hereditary influence.

"Further investigation was made largely by geneticists who entered the field in the first decade of the present century. Their studies were almost entirely on laboratory animals, especially mice. Large, long-range research projects, some of which are still under way, were begun by Tyzzer, Lathrop, Little, Slye, Strong, and others. It is impossible to summarize adequately the results of the important studies, but a few general remarks can be made.

"While in mice a hereditary factor is present in many types of tumor, this factor is neither qualitatively nor quantitatively the same for all types of cancer. A genetic formula which would explain the occurrence of all cancers in animals has not been found. Furthermore, there appear to be species differences in the importance of the hereditary factor. . . .

"The evidence which has accumulated indicates that the importance of hereditary factors is probably different for each type of human cancer, as in mice. Human tumors can be divided into three classes on the basis of our present knowledge in this respect: (1) a group in which a strong hereditary factor is unquestionably present, (2) those in which a hereditary factor is possibly but not surely important, and (3) a group in which there is little or no suggestion of a hereditary factor. In the latter two groups a hereditary factor has not been demonstrated, but neither has it been excluded. . . . All the more common forms of human cancer fall into the second and third groups. These include carcinoma of the stomach, colon, mammary gland, prostate, lung, uterus [womb], biliary system [gallbladder and bile ducts], and others.

"More knowledge on the role of hereditary factors in human cancer is desirable from the point of view of its own importance as well as for the direction of research in collateral fields. If it could be shown that a hereditary factor is not important in the causation of the major forms of human cancer, as, for example, gastric [stomach] cancer, then full efforts could be devoted to finding the immediate exciting causes, because only by controlling them could this form of cancer be prevented. If it should be shown, however, that a hereditary factor is important in the causation of this cancer, thought should be directed toward nullifying its action by genetic methods. Also, known potential victims could be given special clinical observation to discover the early stages, just as care is now taken to discover early tuberculosis in contacts."

Honor Roll

Medical Society of the State of New York

Member Physicians in the Armed Forces

Supplementary List*

The following list is the eleventh supplement to the Honor Roll published in the December 15, 1942, issue. Other supplements appeared in the *January 1*, January 15, February 15, March 1, March 15, April 15, June 1, July 1, August 1, and September 1 issues.—*Editor*

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* The following names of New York physicians were published in the *Honor* Rolls of the August 1 and September 1 issues by mistake: Drs. S. Chlenoff, 772 West End Avenue, New York City; J. B. Cortesi, 921 Nott Street, Schenectady; J. N. Evans, 23 Schermerhorn Street, Brooklyn; F. Feldman, *6220 Bay* Parkway, Brooklyn; S. Gellis, 853 7th Avenue, New York City; G. M. Hemmett, 22 Hoover Road, Rochester; R. J. Hotchkiss, *905 Nott* Street, Schenectady; R. E. Isabella, 607 Union Street, Schenectady; J. *Kaufman*, 201 Eastern Parkway, Brooklyn; A. Kaye, 338 West 84 Street, New York City; H. Lehman, 1383 Carroll Street, Brooklyn; F. E. *Mallon, 1135 Park Place*, Brooklyn; A. Mason, 713 East Genesee Street, Syracuse; and V. C. McCuaig, 40 East 61 Street, New York *City*.

Postgraduate Medical Education

Programs arranged by the Council Committee on Public Health and Education of the Medical Society of the State of New York are published in this section of the JOURNAL. *The members of the committee are Oliver W. H. Mitchell, M.D., Chairman (428 Greenwood Place, Syracuse); George Baehr, M.D.; and Charles D. Post, M.D.*

Tropical Medicine

A SINGLE lecture on "Malaria—Importance of Early Diagnosis and Treatment" was arranged for the Rockland County Medical Society. The lecture was presented at 3:30 P.M. on September 22 at the Letchworth Village in Fields, New York.

The speaker was Harry Most, M.D., assistant professor of clinical pathology and assistant professor of preventive medicine at the New York University College of Medicine.

The instruction was provided by the Medical Society of the State of New York and the New York State Department of Health.

Two Lectures for Greene County

TWO lectures have been arranged for the Medical Society of the County of Greene, to be held at Memorial Hospital of Greene County, Catskill, New York.

The first, "The Peptic Ulcer Problem," is to be given by Albert F. R. Andresen, M.D., professor of clinical medicine at Long Island College of Medicine, Brooklyn, New York, and will be presented Thursday, October 28, at 9:00 P.M.

Francis B. Trudeau, M.D., of Saranac Lake, New York, will deliver the second lecture, "The Diagnosis of Tuberculosis," at 9:00 P.M., Tuesday, November 23.

These lectures have been arranged by the New York State Department of Health and the Medical Society of the State of New York.

"Toxemias of Pregnancy"

A LECTURE entitled "Toxemias of Pregnancy" is to be presented to the Cortland County Medical Society at 8:30 P.M., Friday, November 19.

It will be given at the Cortland County Hospital, Cortland, New York.

The lecturer is Edward C. Hughes, M.D., professor of obstetrics at Syracuse University College of Medicine, Syracuse, New York.

The Medical Society of the State of New York and the New York State Department of Health are providing this instruction.

"METAL LOCATOR" USED FOR FIRST TIME AT MOUNT SINAI HOSPITAL

The first operation on a human eye with the aid of the "metal locator," which helped save many lives at Pearl Harbor, has been reported at the Mount Sinai Hospital in New York City.

The operation for removal of a metal fragment deeply embedded in a patient's left eye, was performed by a member of the hospital's ophthalmologic staff, with the assistance of Samuel Berman, New York subway engineer, who invented the metal locator. The device, which was used after the attack at Pearl Harbor for finding bullets and shrapnel in the bodies of the wounded, is now widely employed by physicians in the American armed forces, but the operation at Mount Sinai, according to Mr. Berman, was the first in which it had been used for so delicate a task as finding a steel splinter about one-eighth of an inch long within the eyeball near the retina.

The particle had been localized by x-ray, and attempts had been made, by means of an electromagnet, to bring it into the front of the eye where it could be removed by the surgeon. These efforts failed. It was necessary to remove the foreign body through the back of the eyeball.

The operation itself was rendered comparatively simple, with the metal locator acting like a divining rod to find the steel fragment. The locator, a probe about the size of a pencil, wired to a small box resembling a portable radio, was operated by Mr. Berman.

After the surgeon had exposed the back of the eyeball, Mr. Berman ran the tip of his locator probe over it.

As the metal point was moved close to the location of the steel splinter, the hand of a sensitive ammeter on the apparatus was deflected. The point at which the maximum deflection occurred was the spot directly over the splinter.

The surgeon made a small semicircular incision so as to reach the exact spot indicated by the locator. He brought the tip of an electromagnet over this opening and switched on the current. The dark tissues beneath were raised as the metal particle embedded in them was attracted toward the magnet. Another minute incision was made in these tissues and the current was switched on again. The steel splinter leaped out of the patient's eyeball and adhered to the end of the magnet.

Medical News

Medical Assembly to Be Held in Chicago

THE twenty-eighth annual International Medical Assembly will be held at the Palmer House in Chicago from October 26 through October 29. A postgraduate school, sponsored by the Inter-State Postgraduate Medical Association, the meeting will be attended by physicians from all parts of the country.

In addition to the regular program of instruction, which will include diagnostic clinics, there will be extensive exhibits, both commercial and scientific.

At the Assembly dinner on Thursday, October 28, speakers will be Dr. Frank H. Lahey, of the Lahey Clinic in Boston, and Brigadier-General Fred W. Rankin, consulting surgeon, Office of the Surgeon General, immediate past-president of the American Medical Association, and president-elect of the Inter-State Postgraduate Medical Association of North America.

Grant Made for Study of Penicillin

THE Board of Trustees of the University of Illinois have announced the acceptance of a grant of $25,000 a year for three years made by The Upjohn Company, of Kalamazoo, Michigan, to be devoted to the academic study of the structural composition and possible synthesis of penicillin.

The Company's present grant, according to F. W. Heyl, Ph.D., vice-president and director of research, provides for an enlarged three-year research chemistry project under the direction of Professor Herbert E. Carter, of the department of biochemistry at the university. This, Dr. Heyl says, amplifies both an earlier cooperative research project at that school and the bacteriologic and other research which is being conducted at the Company's laboratories at Kalamazoo.

Dr. Carter is well known for his work with the amino acids, especially the identification and synthesis of the new essential amino acid, threonine, and more recently for his investigations on the structure of the cerebroside sphingomyelin.

The production of penicillin by the natural growth of the mold, Penicillium notatum, is one of the most laborious and unsatisfactory methods in use for the manufacture of any known therapeutic agent. The hope of the future for the large-scale economical manufacture of this important drug lies in the solution of the pure chemistry, which alone would lead to the chemical synthesis of the substance. It is in the hope of achieving this end that the Upjohn penicillin fellowship at the University of Illinois has been established.

Hazards of Childbirth Lessened

CHILD-BEARING in this country is now safer than ever before, according to the statisticians of the Metropolitan Life Insurance Co., who say that only about one-third as many American mothers currently lost their lives in childbirth as compared with the number who died ten years ago. About two maternal deaths per 1,000 live births now take place in the United States, while prior to 1934 the rate was between six and seven per thousand. And this great saving of life, it is pointed out, is being made despite "a sharply increased birth rate —babies are arriving today at the rate of some 3,000,000 a year—and a shortage of doctors and nurses because of the war."

Comparing maternal mortality in 1941 with that of 1936, after which improvement was especially rapid, the statisticians show that in the earlier year there was not a single state in which the maternal death rate dropped below four per 1,000 live births; by 1941, however, the rate had fallen below that figure in thirty-eight states and the District of Columbia. Moreover, in 1936, a total of thirty-one states and the District of Columbia recorded five or more maternal deaths for every thousand live births, while in 1941 only four states showed such high rates.

The statisticians show that the cooperation of agencies interested in the reduction of material mortality, combined with the use of the sulfa drugs, has been largely responsible for the favorable trend in the maternal death rate during the past few years.

County News

Cattaraugus County

Dr. Benjamin Slater, associate medical director of the Eastman Kodak Company, was the main speaker at the annual Christmas Seal luncheon meeting of the Cattaraugus County Tuberculosis and Public Health Association, Inc., Friday, October 1, at 1:00 P.M. in Olean.

Dr. Slater's topic was "A Planned Health Program."

Miss Hazel Hart, field adviser of the state committee on tuberculosis and public health, spoke on this year's seal sale campaign. Miss Hart was formerly director of the Canadian Christmas seal sale campaign.*

Cayuga County

Dr. John W. Copeland, city health officer of Auburn and chairman of the Committee on Public Health of the county society, and Hal T. Kearns, executive secretary of the Cayuga Health Association, have announced that the results of the recent x-ray program among industrial workers in Auburn show that very few of them have tuberculosis, even in its early stages.*

[Continued on page 2002]

* Asterisk indicates that item is from a local newspaper.

Quality carries on



[Continued from page 2000]

Chautauqua County

Dr. C. Otto Lindbeck, president of the county society, presided at the fall luncheon meeting held on September 16 at the Newton Memorial Hospital in Cassadaga.

The speaker was Dr. Nelson G. Russell, of Buffalo, who gave a talk on his experience with sulfonamides. Dr. Charles E. Goodell and Dr. Frank P. Goodwin discussed the paper.*

Dutchess County

The annual outing and September meeting of the county society was held at the Harlem Valley State Hospital, Wingdale, on September 8.

The guest speaker was Dr. Philip Stimson, associate professor of clinical pediatrics of Cornell University, who spoke on "Diagnosis and Treatment of Poliomyelitis."*

* * *

Dr. Jacob Remler has purchased the residence of Dr. Richardson in Millerton and begun the practice of medicine in that city.

Dr. Remler, who has seen fifteen months' Army service as battalion surgeon with about 1,000 men in his field, has been located at Fort Jackson Hospital. Because of a medical disability he has left Army service for private medical practice.

Dr. Remler received his Bachelor's degree at Columbia and his M.D. at the University of Vienna, where he also did postgraduate work and tutored undergraduates.

Before entering the Army he practiced for seven years in Brooklyn. He was connected with the Brooklyn Jewish Hospital and did medical examinations for seamen of the Clyde Mallory Line.

Mrs. Remler is also a physician. Although she will not be in active practice in Millerton, she expects to do medical work at the Wassaic State School.*

Erie County

The resignation of Dr. Ralph M. Colton as resident physician of the Erie County Home and Infirmary after many years of service was announced recently by Alfred M. Kramer, county personnel officer. Dr. Colton will give his undivided attention to private practice.*

Franklin County

Twenty physicians from the United States, South America, Canada, and Central America registered for a four weeks' course at the Trudeau School for Tuberculosis in Saranac Lake.

The students are given instruction mornings and afternoons in the Saranac Laboratory, at Trudeau Sanatorium, and at Ray Brook Sanatorium.

Since the close of the course on October 8, a supplementary course has been given at Bellevue Hospital in New York City.*

Kings County

Physicians throughout Brooklyn, through representatives, have voluntarily agreed to cut the amount of gasoline they are using, it has been announced by William Jagger, Borough Rationing Administrator.*

* * *

Dr. Gioconda Rita Saraniero, an instructor in hematology at the Long Island College of Medicine, Brooklyn, was the first woman doctor in the Third Naval District to enter the United States Naval Reserve Medical Corps directly from civilian life. All other women doctors in the Corps have transferred to it from the Waves.

Dr. Saraniero was sworn in as lieutenant (junior grade) on September 4.*

* * *

Dr. Ansell W. Derrick, of Charlottesville, Virginia, has accepted the position of director of the Kingston City Laboratory to fill the office left vacant by the resignation of Dr. J. S. Taylor, who is now serving as pathologist at Vassar Hospital.

Dr. Derrick is expected to assume his duties on October 15.

He is now serving as an associate professor of pathology at the University of Virginia in Charlottesville.

Dr. Derrick received his medical degree from the Medical School of the University of Virginia. He has made a special study of cancer and allied diseases.*

Lewis County

Dr. Leo E. Froomess recently opened offices in Lowville.

Dr. Froomess completed his premedical course at the University of Rochester, and was graduated from McGill University Medical College, Montreal, Canada, after which he took a postgraduate course at the University of Edinburgh, Scotland.

He served internships at St. John's Hospital, Long Island City, New York, and at Randall's Island, New York City, and has held a residency at New York Lying-In Hospital, New York City.

After completing his internship, he enlisted in the Medical Reserve Corps during World War I.

On return he practiced general medicine in Elizabeth, New Jersey, and was on the staffs of the Elizabeth General Hospital, St. Elizabeth Hospital, and the Alexian Brothers Hospital of that city.

He was also associated with the Neurological Department of the Vanderbilt Clinic, New York City.

Dr. Froomess spent two years in Europe, specializing in internal medicine and gynecology in London, England, at the Rotunda Hospital, Dublin, Ireland, and at hospitals and clinics in Berlin and Vienna. On his return from Europe he specialized in internal medicine, diagnosis and gynecology in Newark, New Jersey, and New York City.

He has recently been engaged in special research work in geriatrics.*

Nassau County

Dr. Irving Pinsley resumed his practice of medicine at Freeport on September 15. For the past year he has been serving in the Army Medical Corps with the Air Forces. He was recently given an inactive status by the Army.

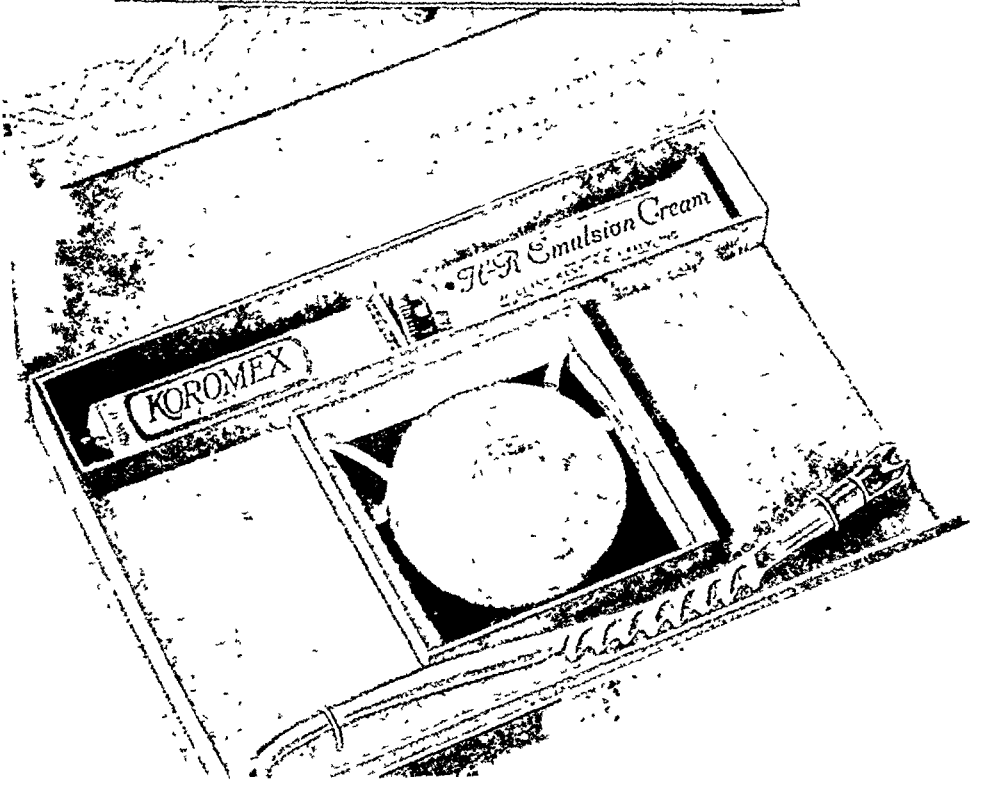
Dr. Rudolph Joseph, who has been in charge of Dr. Pinsley's practice for the past year, will open offices and start his own practice.*

* * *

The health display at the Mineola Fair, held from September 9 to September 14, was under the supervision of J. Louis Neff, executive secretary of the

[Continued on page 2004]

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[Continued from page 2002]

County society and was tripled in size over that of any previous year. It was expanded to include war efforts for health in the Army and Navy and on the home front and was supplemented by an outdoor Red Cross Cavalcade.

New York County

Dr. Martha Elizabeth Howe, surgeon and cancer specialist at Memorial Hospital, New York City, has been commissioned a captain in the Medical Corps of the WAC.

Captain Howe reported to Des Moines, Iowa, on September 17, to start active duty.*

• • •

A round-table symposium on cancer was held on October 11 at the Hotel Pennsylvania in New York City, with Mr. Thomas J. Duffield presiding. The meeting was held in connection with the convention of the American Public Health Association.

The symposium was divided into several sessions, including sessions on epidemiology, administration, service to cancer patients, and education.

• • •

Dr. Henry E. Sigerist, director of the Institute of History of Medicine, Johns Hopkins University, addressed the members of the New York Society for Medical History on September 30. His subject was "Russian Medicine: Past and Present."

Dr. Sigerist's address was discussed by Dr. J. M. Rowe, medical adviser to the Soviet Government Commission, and Dr. Arthur F. Chace, president of the New York Academy of Medicine.

The meetings of the New York Society for Medical History are open to the medical profession and to the public.

• • •

Dr. Charles Walter Clarke, of New York City, has been appointed clinical professor of public health practice at Harvard University. He will continue also as executive director of the American Social Hygiene Association, New York City.

Oneida County

Dr. Milton J. Raisbeck, of New York City, was the first speaker of the season at the monthly meetings of the Utica Academy of Medicine, which started September 16.

Dr. Raisbeck addressed the doctors at a dinner meeting. His topic was "Surgical Treatment of Coronary Disease."*

• • •

Dr. T. Wood Clarke, of Utica, has been made a Fellow of the American College of Allergists and a member of the editorial board of the *Annals of Allergy*, published by the college.

• • •

The Utica Academy of Medicine and the county society have combined to sponsor a monthly publication, *The Bulletin*.

The societies of Fulton, Herkimer, Lewis, Madison, and Otsego counties and the Utica Dental Society will cooperate in issuing the *Bulletin*.

The joint publication committee includes Dr. William W. Wright, Dr. C. Gray Capron, Dr. Fred G. Jones, and Dr. T. Wood Clarke, together with Dr. Ross D. Helmer and Dr. H. Miller Mitchell, ex-officio, representing the Academy of Medicine and Roscoe C. Borst, Dr. Robert C. Hall, Dr. Gordon B. Taylor, and Dr. Ward Millias, with Dr. B. F. Golly, Dr. O. J. McKendree and Dr. A. Vernon Johnston, ex-officio, representing the county society.

Dr. Clarke is the acting editor. Correspondents will be Dr. L. Tremante, Gloversville; Dr. H. E. Chapin, Lowville; Dr. F. C. Sabin, Little Falls; Dr. F. Ottaviano, Oneida; and Dr. M. F. Murray, Cooperstown.*

• • •

Major Stuart E. Krohn, of Utica, has become chief of medical supplies somewhere in Palestine where American casualties, including those wounded in the Tunisian campaign, are being cared for.

Others being treated at the hospital include parachutists injured in Sicily and airmen wounded over Ploesti.

Barrack-like structures along the contour of a hill, plain buildings of cement blocks with corrugated tin roofs, house modern medical equipment at the station, its officers report.*

• • •

Dr. Herman J. Segaul, one of the first Utica physicians to volunteer for war service, has been granted an honorable discharge and retired as a captain in the Army Medical Corps to an inactive status.

He plans to resume the practice of medicine in Utica.*

• • •

Lt. (s. g.) James R. Wilson, USNR, of Utica, has been named assistant attending physician of the Cornell University Infirmary and Clinic. Dr. Robert W. Harris, USN, was appointed attending physician.*

Onondaga County

The 52d General Hospital, the Syracuse University medi[illegible]n a hospital near the town of [illegible] midlands region of western England, about one hour's train ride from Birmingham. A letter from Lt. Col. Richard S. Farr identifies the village as Wooverly.*

Ontario County

Dr. Leon A. Stetson was host on September 9 for the first fall meeting of Canandaigua Medical Society. Dr. Frederick C. McClellan read a paper and showed x-ray plates on urology.

Guests were Dr. Frederick C. Robbins, of Brigham Hall Hospital, and Lt. (j. g.) Augustus W. Sainsbury, now stationed at Sampson Naval Base. Dr. Margaret T. Ross, president, conducted the meeting, which followed dinner.

Dr. A. W. Armstrong, of West Lake Road, will be host for the next meeting on October 7. Dr. E. C. Merrill will be reader.*

Queens County

"Diseases of the Biliary Tract" was the subject of a lecture given by Julian Rose, M.D., at a meeting of the county society on September 17 in the County Society Building in Forest Hills.

[Continued on page 2006]

FOR THE MOTHER-TO-BE

Clothing assumes significant importance in pregnancy, and as every physician knows today should receive early and careful attention.

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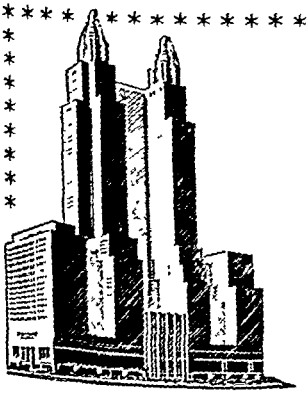
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[Continued from page 2004]

St. Lawrence County

Dr. William R. Carson, assistant physician at the St. Lawrence State Hospital in Ogdensburg, resigned recently from the staff and will take a short rest before returning to active practice, probably in St. Lawrence County.

Dr. Carson has been a member of the State Hospital staff for seven years.*

Steuben County

The Steuben County Bar Association and the Medical Society of the County of Steuben had a joint luncheon meeting on September 16 in Hornell.

The scientific program included a talk on "The Medical Examiner's System as It Functions in Nassau County," by Theodore J. Curphey, M.D., chief medical examiner, Nassau County.*

Warren County

Dr. V. D. Selleck, of Glens Falls, was renamed a member of the public health committee of Warren County for four years, dating from September 1, 1943, at the monthly meeting of the Warren County Board of Supervisors at Lake George recently.*

Washington County

Dr. S. J. Banker, school physician of the Fort Edward schools, was granted a six months' leave of absence, beginning October 1, by the Board of Education at a recent meeting. Dr. Roy E. Borrowman was named acting school physician during Dr. Banker's absence.

Westchester County

The county society opened its fall program on September 24 at New York Hospital, Westchester Division. Dr. Henry E. Meleney, Herman M. Biggs Professor of Preventive Medicine at the New York University School of Medicine, spoke on "Problems of Malaria and Some Other Tropical Diseases in Returning Military Personnel."

At this meeting, the county society declined to approve a resolution condemning the Wagner-Murray-Dingell Social Security Bill, pending in Congress. Instead a resolution was adopted authorizing the board of the society *Bulletin* to carry on a program of education in regard to the bill, which may be acted on at a later meeting.

The society received nominations to be acted upon at the annual meeting in November. Dr. Merwin E. Marsland, of Mamaroneck, president-elect, will become president at that meeting.

Dr. Laurance D. Redway, of Ossining, was nominated president-elect; Dr. Isadore Zadek, of Mount Vernon, vice-president; Dr. Henry E. McGarvey, of Bronxville, renominated secretary; Dr. W. Alex Newlands, of Tarrytown, renominated treasurer; Dr. George C. Adie, of New Rochelle, vice-president, Dr. George O. Tremble, of Port Chester, and Dr. N. M. H. Blumenkranz, of Peekskill, censors for two-year terms, and Dr. Redway and Dr. Reginald A. Higgons, of Port Chester, delegates to the State Society for two-year terms, with Dr. William R. Roane, of Irvington, and Dr. E. Leslie Burwell, of New Rochelle, alternate delegates.

The society approved a report of its governing board endorsing a program for mass tuberculosis case finding surveys in Westchester industrial plants. The society also endorsed in principle the idea of taking a routine chest x-ray of all persons admitted to general hospitals.*

• • •

Dr. John B. Ahouse, president-elect of the Yonkers Academy of Medicine, has received the rank of lieutenant-commander in the Navy Medical Corps and has reported to the Brooklyn Naval Base.

A pediatrician, Dr. Ahouse has practiced in Yonkers since 1930.

Dr. Eleanor Adler, pediatrician, this week took over Dr. Ahouse's practice and will continue it at his office.

• • •

Dr. Wallace Sheridan, of White Plains, has been appointed physician for the Scarsdale schools, to take the place of Dr. Regine K. Stix, who has resigned.

For the past year Dr. Sheridan has given part-time service for the physical examination of boys at the schools, and the previous year he was medical supervisor for the interscholastic football games.



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TRAVEL MEDICINE

The railroads still draw the spotlight in the transportation problems now proving more difficult to solve than ever.

To understand the burden this war has placed on our railroads one needs merely to picture what has transpired since our entry into the war. In the year following the Pearl Harbor "needle," the railroads handled more than 11,600,000 soldiers in organized movements alone—almost four times the number transported in similar movements during the first year of our participation in the last war.

Since America entered the present conflict, the railroads not only have ceased to advertise to the public to stimulate travel, but lately they have put their advertising in reverse to discourage unnecessary trips. Neverthless, there has been an unprecedented increase in passenger traffic. In 1942, railroad passenger business was two and a third times as much as it was in 1939, and one-sixth times as much as the previous record year of 1920. And it is still going up. In the first two months of this year, passenger-miles—that is, the number of passengers carried for a distance of one mile—were about 90 per cent more than they were in the corresponding period in 1942.

Although the movement of troops is largely responsible for this rise in passenger traffic, the increase is also due to other causes. Thousands of people are traveling on war business. Millions more, because of the gasoline and rubber restrictions are turning to the railroads to get them where they want to go.

The unavoidable effect of this has been crowded railroad stations and trains; delays in making reservations and buying tickets; delays in transit and, in general, a lowering of normal travel standards.

The greater mechanization of fighting forces in this war and the greater consumption of material have both created a tremendous demand on freight shipping facilities. An American soldier in the field today requires almost twice as much material and supplies of all sorts as in 1918.

But weight and bulk of the freight are not the only factors that make the railroads' war job so much bigger this time. Because we are fighting all over the globe, freight must be hauled for longer distances. In the last war, very little export freight was passing through our Pacific ports. Today, a substantial share of the total movement is handled through the West Coast.

[Continued on page 2009]

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Medicine and the War

Leahy to Address Military Surgeons

ADMIRAL William D. Leahy, personal Chief of Staff to President Roosevelt, will address the symposium on war medicine at the fifty-first annual convention of the Association of Military Surgeons of the United States, to be held at the Bellevue Stratford Hotel in Philadelphia, October 21, 22, and 23.

The Admiral, who served as Ambassador to the Petain Government in France before joining the President's War Council, is expected to bring an important war message to the nation when he visits Philadelphia.

In honor of Admiral Leahy, the Association of Military Surgeons has designated Friday, October 22, as Navy Night. The annual dinner of the Association will be held in the ballroom of the hotel at 7:00 P.M., at which Admiral Leahy will be the guest of honor. At 8:30 P.M. Rear Admiral Ross T. McIntire, Surgeon General of the Navy, will present the ranking officers of the Army and Navy to the convention. Admiral Leahy will speak at 9:00 P.M.

Another vital report on the war will be given to the convention on the night of October 21, when Lieutenant General Sir Alexander Hood, Director General of the British Medical Services, will speak. General Hood is among the representatives of fourteen foreign countries who will attend the war medicine symposium.

The convention, open to all physicians and dentists in the country in the Army, Navy, or civilian service, has arranged what is considered to be the most vital program on war medicine ever held in this country.

Army and Navy officers from the battlefields of the Solomons, Tunisia, Alaska, the Aleutians, and Italy will tell of their experiences in caring for casualties under enemy fire. Clinics and lectures will be held, revealing the latest developments in the use of penicillin and the latest technic in the treatment of venereal diseases.

Another feature of the convention announced by Rear Admiral William L. Mann, president of the Association, will be the showing of movies of life in wartime Japan from films captured from Japanese officers. These films, hitherto shown only in secret, will be exhibited to the members and their guests at the convention.

Examination for Candidates for Medical Corps, Regular Army

THE War Department announced on September 7 that examinations for the purpose of qualifying candidates for appointment as first lieutenants in the Medical Corps, Regular Army, to fill vacancies occurring during the fiscal year 1945, will be held on January 24 through January 27, 1944. The examinations are open to all male citizens of the United States who are graduates of acceptable medical schools in the United States and Canada, who have completed one year's internship in an approved hospital and who will not be over 32 years of age at the time it will be possible to tender a commission. The examinations will be conducted by boards of medical department officers and will consist of a physical examination, a written examination in professional subjects, and a determination of the [illegible] for military service. Candi- [illegible] xamination will not be permitted to take more than one subsequent examination.

Full information and application blanks will be furnished on request by the Adjutant General, War Department, Washington 25, D.C. Applications from candidates in the continental limits of the United States received after January 7, 1944, will not be considered.

Doctors and Medicine in the Sicilian Campaign

SWIFT and highly skilled psychiatric treatment almost on the scene of battle has restored to combat fitness in record time American soldiers who "cracked" in the Sicilian battle lines under the shock of fear and horror, the Army Medical Corps reported.

Front-line diagnosis and treatment of "battle nerves" and skilled care in rear hospitals rapidly are lowering the percentage of neurosis cases among American troops, which was moderately high during the Tunisian campaign. About 25 per cent of the men treated now are returned to limited service in a shorter time than was possible before.

Battlefield neurosis in World War I was labeled "shell shock," although the condition was not necessarily a result of the blast of a bomb or shell. It now is known to be an emotional disturbance resulting from terrific mental conflicts against a background of ear-splitting explosions, wounded or killed comrades, exhaustion, and poor nutrition.

Capt. Lawrence P. Roberts of Orangeburg, New York, a psychiatrist with the United States forces in North Africa, said "the horrible mistake of the last war was in thinking a so-called shell-shocked patient was permanently ill."

"This thinking resulted in permanent cases," Captain Roberts said. "But today we find few men who are permanently injured."

The leading exponent of on-the-spot psychiatric treatment is Major Frederick R. Hanson, a native of Omaha, Neb., who practiced psychiatry at Montreal.

Major Hanson devised his treatment from personal observation of nervous cases in the Dieppe raid and on two other similar attacks.

"The longer a soldier broods on his emotional ills," he said, "the more deeply impressed the symptoms become. We try to rid him of his fears and illusions at once."

One of the principles of the treatment, besides complete rest and relaxation, is to get the patient to talk of his battle-front experiences. In this manner the soldier releases his excitement in re-

[Continued on page 2010]

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[Continued from page 2007]

Yet, strangely, the railroads are performing the wartime service with considerably less equipment than they had in the last war—600,000 fewer freight cars, 22,000 fewer locomotives and 9,000 fewer passenger coaches.

The only reason the railroads have been able to do the job with this handicap is that the railroads of today are better railroads—better equipped, better operated and better organized. They were also prepared long ago to meet emergencies, and have been kept up to date as emergencies developed.

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MODERN TOOTHACHE RELIEF

Another step forward in the relief of pain and to real painless dentistry has been made this year. A paste containing 33 per cent sodium fluoride has shown promising results in relieving toothache due to exposed dentin, common cause of dental pain.

In a report to the American Dental Association, Drs. William H. Hoyt and Basil G. Bibby of Boston, stated that "after short treatments, teeth that had caused trouble for years ceased to be sensitive."

Use of the chemical was first suggested by Dr. E. H. Lukomsky of the First Moscow State Medical Institute. The treatment has also been used successfully in relieving pain in sensitive areas caused by preparing cavities for fillings.

The cavity is first soaked with two weak solutions of the sodium fluoride, before the 33 per cent solution is applied, to offset the intense cold and pain caused for a short time by the application of the full strength. No logical explanation can be offered at present as to why sodium fluoride has this remarkable effect, and, since it is a toxic drug, dentists have been warned to use the treatment with caution until further studies have been made.

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[Continued from page 2008]

counting the sights and effects that had overwhelmed him, is able to see his fears honestly and conquer them.

Another treatment is the hypnotic trance, usually induced by means of a mild drug, in which the patient is led to tell his story. The soldier thus lets down the wall of inhibition that had prevented him from releasing his battlefield emotions.

His physical and mental reactions are bared to the psychiatrist. The doctor can then work with a knowledge of the worries and fear that have been in the soldier's mind and methodically bring the man back to mental peace and stability.

The hospital in this area, with its 450 patients, is under the direction of Lieut. Col. J. E. Cox of Waynesboro, Va. His staff of psychiatrists includes Capt. Roberts, Capt. John Spiegel, of Chicago; Capt. A. L. Hudson, of New Philadelphia, Ohio; Lieut. Albert Glass, of Baltimore, and Capt. Calvin S. Drayer, of Philadelphia.

American ingenuity, that turns empty shell cases into first-aid kits and jeeps into four-stretcher field ambulances, contributed to saving lives of soldiers in Sicily.

An Army medical report tells of a number of improvisations which proved most valuable.

Cardboard cases which formerly contained mortar shells were used to carry bandages, sulfanilamide envelopes, and medical supplies to the front. They were slung over the backs of Medical Department aid men and when sealed with adhesive tape kept the contents dry and serviceable.

The jeep, the vehicle of all war trades, was easily adapted to errands of mercy by the medical men.

With a few cents' worth of salvaged lumber and a handful of screws they constructed frameworks on which each machine was able to carry four litters. "Jeepolances" promptly began going over terrain no regulation ambulances could face.

Invitations to American Medical Officers

INVITATIONS have been extended to medical officers of the armed services of the United States to attend all scientific meetings of the Australian branches of the British Medical Association. In Queensland they have been offered various other facilities including the use of the branch library and have been invited to attend postgraduate courses arranged by the Queensland Postgraduate Committee. During a weekend course held recently in Brisbane several American medical officers took part as lecturers in the program. Arrangements have also been made for the regular supply of copies of the *Medical Journal of Australia* to each medical unit of the United States Army in Australia.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Nessim D. Benezra	54	Istanbul	September 4	Manhattan
Robert B. Carpenter	35	Buffalo	September 7	Buffalo
Eugene C. Ciccarelli	42	Syracuse	September 24	Scarsdale
John B. Corsiglia	72	L.I.C. Hosp.	June 11	Manhattan
John J. Finerty	79	Niagara	September 18	Derby
Joseph Freston	76	P. & S., Baltimore	September 9	Highland
Otto Frischbier	72	L.I.C. Hosp.	June 11	Brooklyn
Ellwood Harlow	70	Univ. & Bell.	September 22	Manhattan
Ferdinand Jeffries	79	Bellevue	September 4	Manhattan
H. Haig Kasabach	44	Michigan	September 1	Manhattan
Morris Kassel	49	P. & S., N.Y.	June 10	Brooklyn
Royal E. La Grange	60	Albany	September 6	Fort Ann
William T. Liccione	47	P. & S., N.Y.	September 26	Mount Vernon
Thomas D. Mac Rossie	71	N.Y. Univ.	September 1	Copiague
Wayland H. Mason, Jr.	41	Univ. & Bell.	September 7	Norwich
James McCreedy	72	L.I.C. Hosp.	June 13	Manhattan
William Nagin	58	L.I.C. Hosp.	September 19	Brooklyn
Edward S. Norton	67	L.I.C. Hosp.	September 21	Brooklyn
John D. O'Brien	62	Buffalo	September 16	Buffalo
Alva L. Peckham	69	Hahne., Phila.	September 13	Poughkeepsie
Jacob B. Prager	61	Univ. & Bell.	September –	Manhattan
Joseph A. Randazzo	34	Boston	July 23	Floral Park
James R. Sharp	76	Pennsylvania	September 10	*Manhattan*
Edwin F. Sibley	64	Albany	August 24	Kingston
Nathan P. Thayer	65	Harvard	September 18	Brooklyn
August A. Thomen	53	Univ. & Bell.	September 11	Manhattan
Samuel Wein	42	L.I.C. Hosp.	July 20	Bronx

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RATIONING AND GROWTH

Food rationing apparently has no ill effect on the natural growth of youngsters.

In England, private schools have found it increasingly difficult because of wartime rationing, to give their pupils proper meals. Checking the results of several years of this condition, members of the Department of Medicine, Cambridge University, found that instead of a wholesale stunting of growth many youngsters had actually benefited.

For the survey, boys were divided into age groups and no significant decrease in height or weight was discernible during the past three years. In fact, it was found that the fifteen and sixteen year olds were not only taller, but heavier, than others of a corresponding age before any food restrictions were imposed.

This phenomena, however, remains unexplained.

CLOSES DOORS BECAUSE OF DECLINING INFANT MORTALITY

On October 1st, after 34 years of service as a convalescent home for mothers with newborn babies, Caroline Rest at Hartsdale, N. Y., closed its ten acre place.

"Because of the steadily declining infant mortality rate in New York City," explained Albert G. Milbank of the society which had founded the home in 1909, "it was felt that this service and demonstration had largely fulfilled its purpose."

IT'S THE SCIENTISTS AGAIN

"A lot of people hope to go back to the world as it used to be. But no," states a new commentator.

"Scarcely has synthetic chemistry put the rubber tree out of business when along comes electronics with a mass spectrometer that will do the work of a dozen synthetic chemists. Leave it to science and the silkworm also will be out of a job when the war is over. Cotton will still be raised, but mainly for oil and lint. Sheep will be reduced to supplying mutton, while wool for clothing and carpets will be made of spun silica or something, and then good-by moths. We shall live in houses of glass or paper with plastic windows, sleep warm through wintry nights without covers, and if we lose the door key it won't matter, for the right password whispered in the speaking tube will spring the lock."

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Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N. Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

RECEIVED

The Therapy of the Neuroses and Psychoses. By Samuel H. Kraines, M.D. Second edition, thoroughly revised. Octavo of 567 pages. Philadelphia, Lea & Febiger, 1943. Cloth, $5.50.

Manual of Fractures. Treatment by External Skeletal Fixation. by C. M. Shaar, M.D. and Frank P. Kreuz, Jr., M.D. Octavo of 300 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Cloth, $3.00.

Geriatric Medicine. Diagnosis and Management of Disease in the Aging and in the Aged. Edited by Edward J. Stieglitz, M.D. Octavo of 887 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Cloth, $10.

Gastro-enterology. By Henry L. Bockus, M.D. Vol. 1, The Esophagus and Stomach. Octavo of 831 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Three volumes to be published. Price of set $35.

The Genealogy of Gynaecology. By James V. Ricci, M D. Octavo of 578 pages, illustrated. Philadelphia, Blakiston Co., 1943. Cloth, $8.50.

The Boy Sex Offender and His Later Career. By Lewis J. Doshay, M.D. Octavo of 206 pages, illustrated. New York, Grune & Stratton, 1943. Cloth, $3.50.

The Microscope and Its Use. By Frank J. Muñoz in collaboration with Dr. Harry A. Charipper. Octavo of 334 pages, illustrated. Brooklyn, Chemical Publishing Co., Inc., 1943. Cloth, $2.50.

The Medical Clinics of North America. July, 1943 (Mayo Clinic Number). Octavo. Illustrated. Philadelphia, W. B. Saunders Co., 1943. Published bi-monthly (six numbers a year). Cloth, $1 net; paper, $12 net.

Health and Physical Fitness. By I. H. Goldberger, M.D., and Grace T. Hallock Octavo of 59 pages, illustrated. Boston, Ginn & Co., 1943. Cloth $1.92.

Hospital Discharge Study. By Neva R. Deardorff and Marta Fraenkel, M.D. Vol. 2, Hospitalized Illness in New York Citv. Octavo of 34 pages, illustrated. New York, Welfare Council c New York City, 1943.

The Principles and Practice of Industrial Medicine. Edited by Fred J. Wampler, M.D. Octavo c 579 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $6.00.

An Atlas of Anatomy. By J. C. Boileau Grant Vol. 1, Upper Limb, Abdomen, Perineum, Pelvi and Lower Limb. Quarto of 214 pages, illustratec Baltimore, Williams & Wilkins Co., 1943. Cloth $5.00.

Collected Papers of the Mayo Clinic and the Mayo Foundation. Edited by Rochard M. Hewitt, M.D. A. B. Nevling, M.D., John R. Miner, James R Eckman, and Katharine Smith. Vol. 34, 1942 (published July, 1943). Octavo of 999 pages, illustrated Philadelphia, W. B. Saunders Co., 1943. Cloth, $11

The Role of Nutritional Deficiency in Nervous and Mental Disease. [Res. Publ. Ass. Nerv. Ment Dis., Vol. 22.] Editorial Board, Stanley Cobb, M.D chairman. Octavo of 215 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943.

REVIEWED

Lymph Node Metastases: Incidence and Surgical Treatment in Neoplastic Disease. By Grantley Walder Taylor, M.D., and Ira Theodore Nathanson, M.D. Octavo of 498 pages, illustrated. New York, Oxford University Press, 1942. Cloth, $8.00.

The first section of this book is devoted to anatomic considerations of lymph nodes based on standard textbook dissections and on information obtained from patients with extensive metastatic disease. In Part 2 there is an analysis, with tables, of metastatic lymph node invasion from various organs and areas. Surgical treatment is evaluated and the position of radiation therapy is considered. The third section has complete descriptions and illustrations of operative technic, including choice of anesthesia and care of the patient. The book is recommended to all surgeons.

LEO M. MEYER

The Medical Clinics of North America. Vol. 27, No. 3, May, 1943. Octavo, illustrated. Philadelphia, W. B. Saunders Co., 1943. Published bi-monthly (six numbers a year). Cloth, $16 net; paper, $12 net.

Some common and rare diseases which occur during and after every war are chiefly the subject of this latest excellent volume of the *Medical Clinics*. Particularly valuable are the discussions of smallpox, encephalitis, dysentery, brucellosis plague, cholera, typhus, Rocky Mountain spotted fever, and coccidioidomycosis, which may play more important part in causing disease than eve before.

The material is generally pithy, always authoritative, and invariably up to date.

A. BABEY

The Sexual Glands of the Male. By Oswald Swinney Lowsley, M. D., and collaborators. (Re printed from Oxford Loose-Leaf Urology.) Octavo of 619 pages, illustrated. New York, Oxford University Press, 1942. Cloth, $10.

The title of this excellent work is an indication o the considerable progress which has been made in our knowledge of the sexual glands of the male Dr. Lowsley has made an excellent contribution.

The work is fully illustrated and is divided into three parts: the first, by Dr. Lowsley, covers all phases of the study of the prostate gland; the second, by Hinman and Smith, is on the testicles and epididymis; and the third, by Dr. Gutierrez is on the seminal vesicles, vasa, and spermatic cord. Each part is followed by an extensive bibliography.

The book should prove a valuable reference work for urologists, as well as for practitioners who are interested in this field of work.

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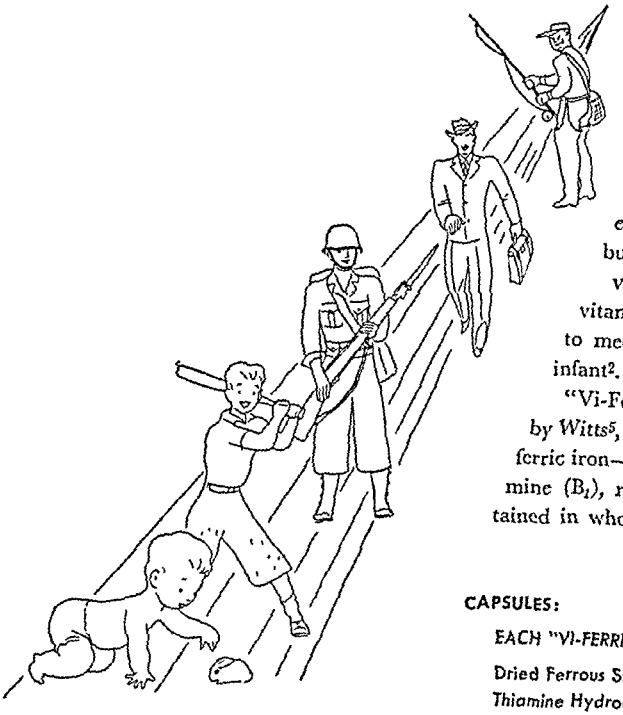
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REFERENCES:

[1]Federal Register. 6. 5921 (Nov. 22) 1941.

[2]Report on the Physiological Bases of Nutrition League of Nations; 2 17 (1936).

[3]STRAUSS, M. B. J. Clin. Investigation 12 545 (Mar.) 1933

[4]Holt's Diseases of Infancy and Childhood Appleton-Century Co., New York, 11th edition, p. 618.

[5]WITTS, L. J.: Proc. Roy. Soc. Med. 24: 543 (Jan. 13) 1931.

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VOLUME 43 NOVEMBER 1, 1943 NUMBER 21

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Electric Shock Therapy in Manic Depressive Psychoses, *Margaret T. Ross, M.D.* 2055

A Study of Over Two Thousand Cases of Electrofit-Treated Patients, *David J. Impastato, M.D., and Renato J. Almansi, M.D.* 2057

Cutaneous Moniliasis, *Paul E. Bechet, M.D.* 2065

Meningococcus Infection, *Robert F. Korns, M.D.* 2069

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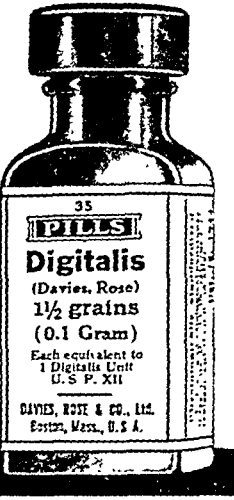
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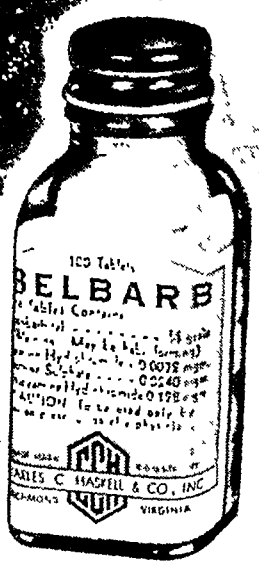
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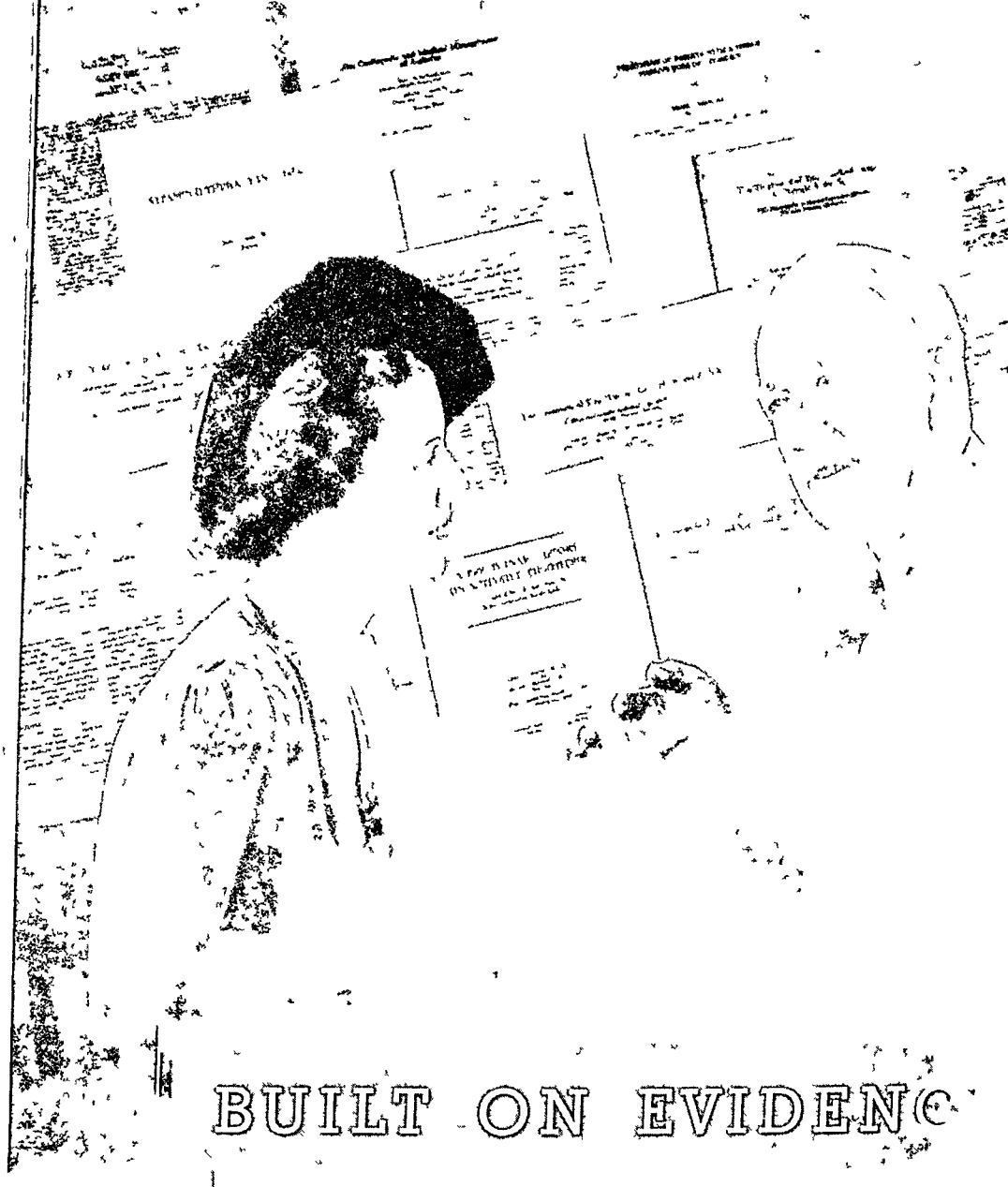
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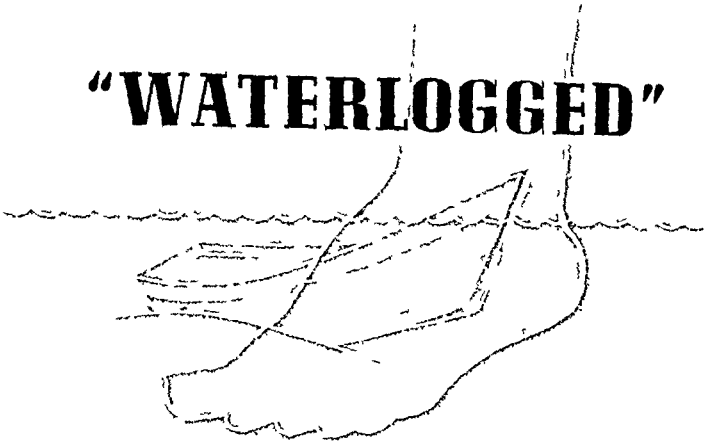
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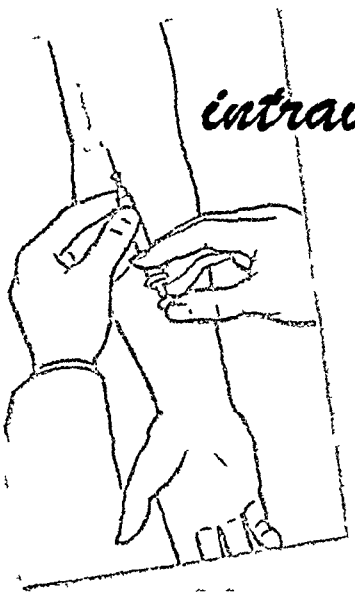
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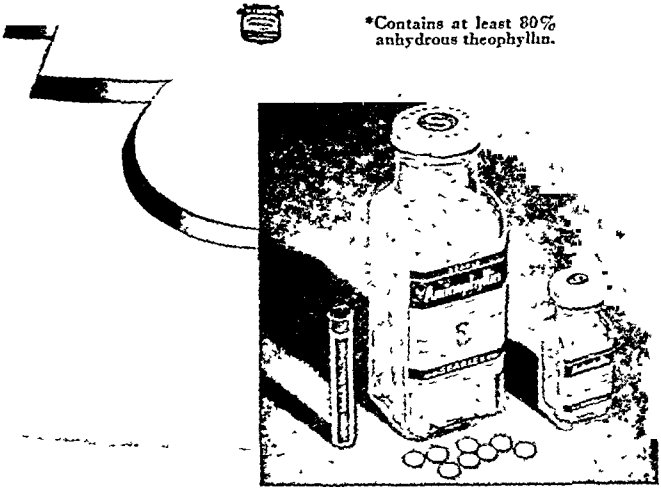
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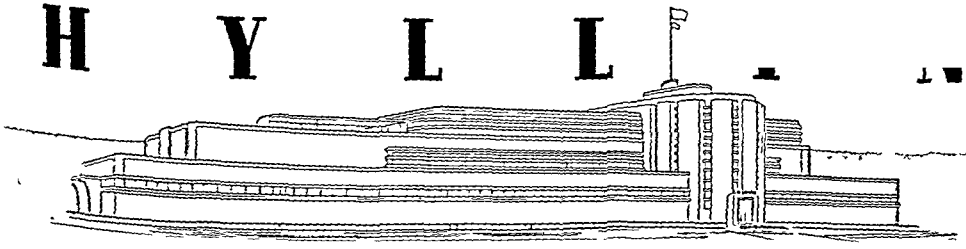
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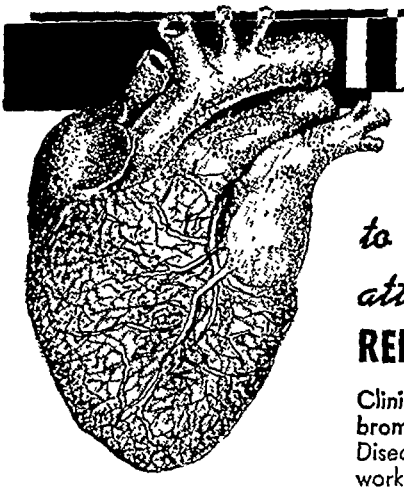
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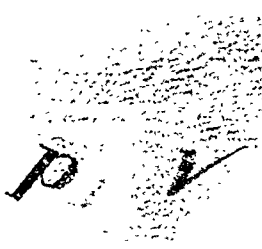
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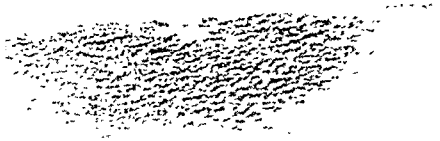
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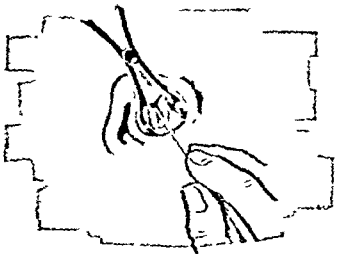
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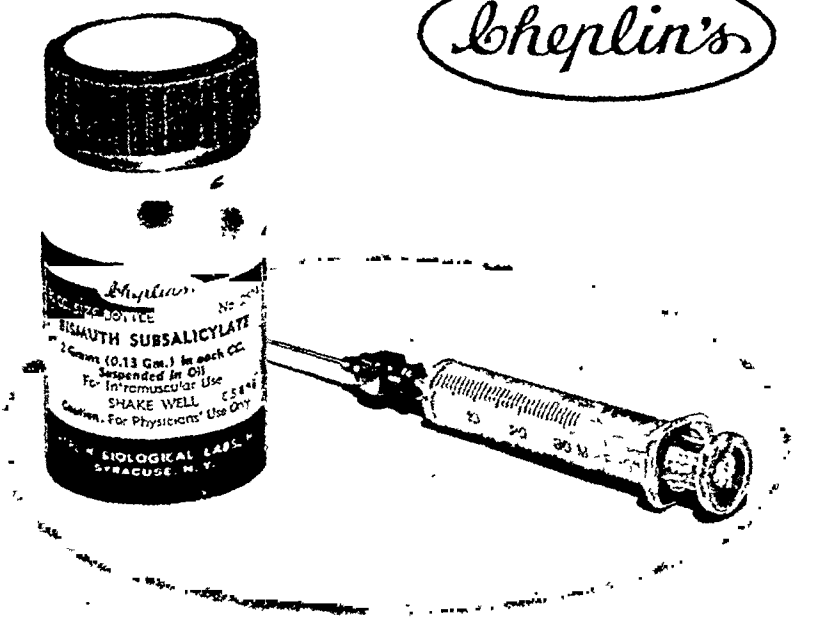


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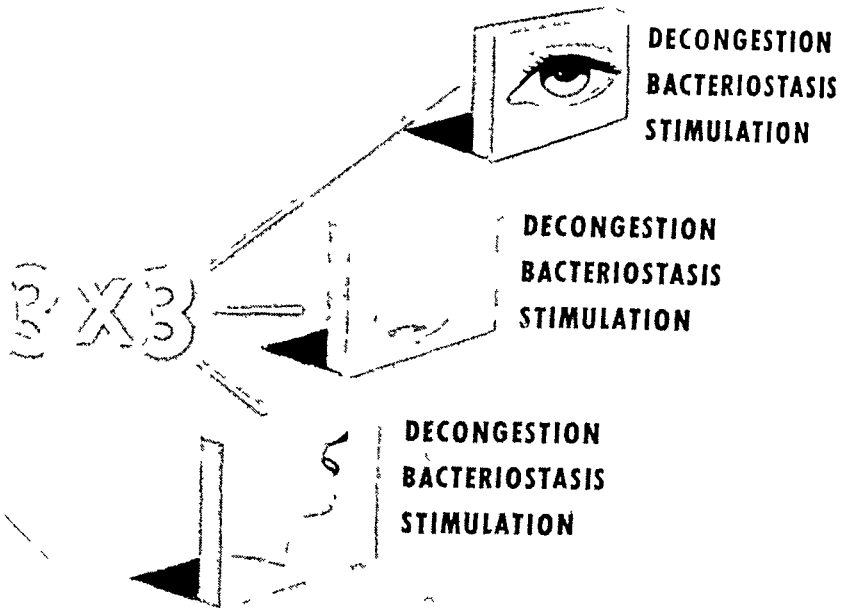
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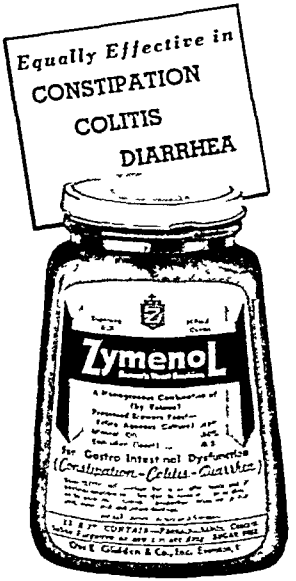
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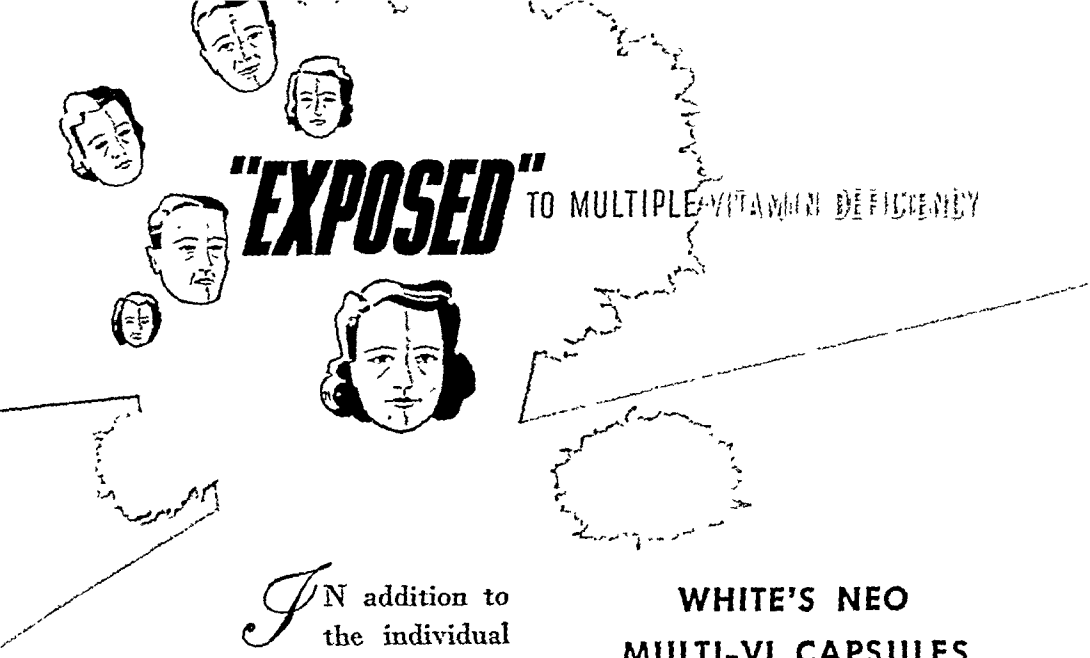
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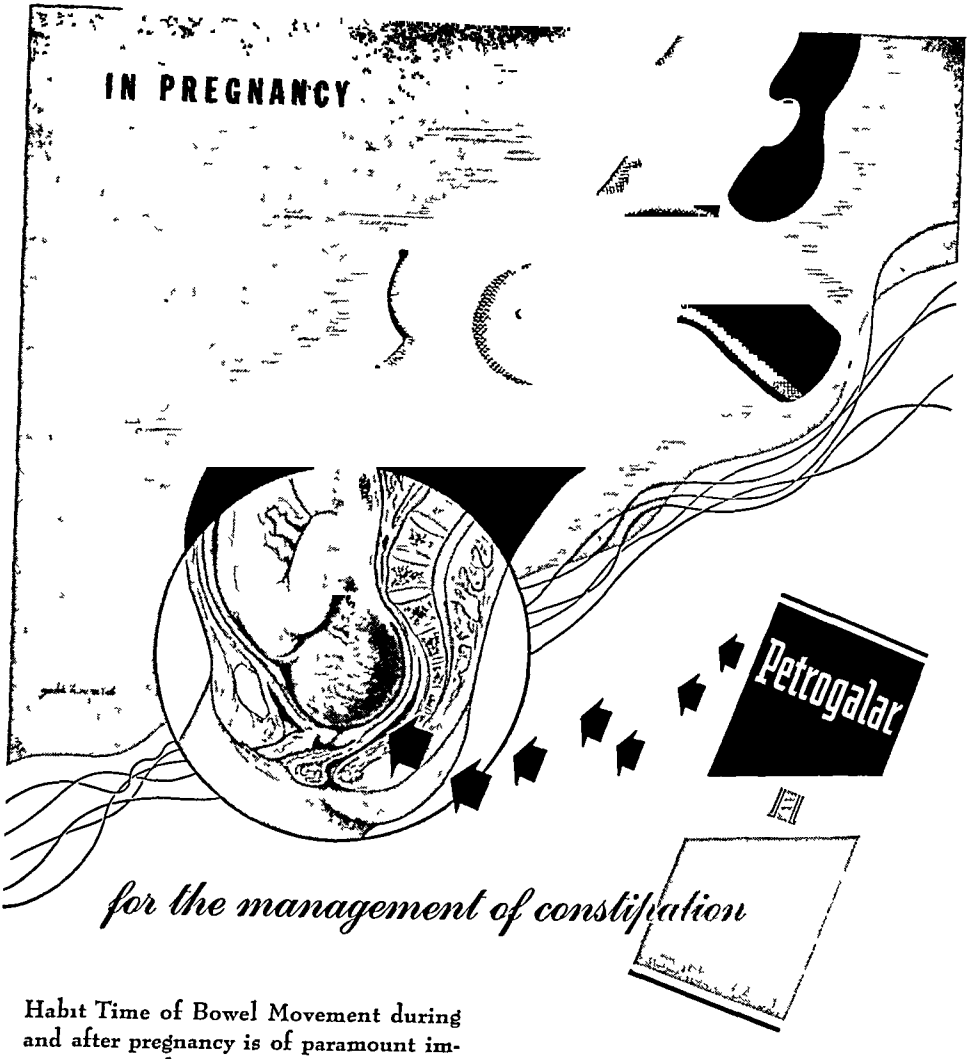
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NEW YORK STATE JOURNAL OF MEDICINE

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VOLUME 43 NOVEMBER 1, 1943 NUMBER 21

Editorial

The Well of Righteousness

In an editorial entitled "Council Standards and Medical Advertising,"[1] liberally interspersed with such melodramatic passages as "a moaning and a groaning from those who saw in its functioning their impending dissolution," and "value. . . .far above that of jewels or gold," the House of Delegates of the Medical Society of the State of New York which sponsors it, the Publication Committee which guides it, the Business Office which quite openly provides some of the money to publish the NEW YORK STATE JOURNAL OF MEDICINE are "counted as lost before the altar of those who give their faith to scientific therapy." If in fact true, this matter should be brought to the attention of the physicians of the State of New York at the earliest possible moment. Because those physicians will be interested to know what sort of a pariah they have in their midst. They will also want to know in what sort of allegedly questionable journalistic company their official JOURNAL is roistering. The editor of the *J.A.M.A.* tells them:

> "The journals of two state medical societies—Illinois and New York—have been conspicuous almost from the first in their insistence on the profits to be derived from the publication of advertisements of unaccepted products. For a brief period the NEW YORK STATE JOURNAL OF MEDICINE agreed to abide by scientific therapy;"

but (Hast thou marked the old way which wicked men have trodden?[2])

> "apparently the insistence of the business office ultimately prevailed; that periodical is today among those counted as lost before the altar of those who give their faith to scientific therapy. . . . .In the past month . . . . the *Pennsylvania Medical Journal* has carried announcements of perandren and metandren . . . and of privine, a vasoconstrictor; the *New England Journal of Medicine* carried one for ferrosate . . . . *California and Western Medicine* in the July issue alone published advertisements for six nonaccepted products. The September issue of the *Southern Medical Journal* carries advertisements for more than twenty unaccepted preparations, and the Illinois and New York journals continue to be veritable directories of unestablished and unscientific therapy . . "

Apparently this villainy is well scattered around the country, at any rate.

> "As long as any considerable part of the medical profession contributes to extending the blight of the falsely exploited proprietary medicine, the battle for scientific therapy remains difficult. In any war the most dangerous attack is the attack from the rear. The threat most difficult to meet is that from those who should be presumed to be friends. The time should long since have passed when leaders of medical organizations consent to permit the exploiters of unestablished proprietary remedies to pay the bulk of printing and publishing bills of the medical journals that are supposed to represent scientific medicine. Can the physicians of Illinois and New York and the representatives of a few states who are urging a breakdown of the Council standards believe that the business managers of their periodicals are better equipped to judge what is good in materia medica and therapeutics than is the Council on Pharmacy and Chemistry?"

Not by a jug full they can't! And we do not believe that many do, but we can find space to deplore the kind of attack from the rear which, in our opinion, such an editorial as the *J.A.M.A.*'s exemplifies. Merely a perfunctory inquiry into the manner in which the advertising in the *N.Y.S.J.M.* is accepted or rejected by the Publication Committee (the business manager never voting) would have been sufficient to relieve the business office of any such accusation as is here made with a carefree disregard of the truth. The fact is that honest differences of opinion exist between the physi-

cians on the Publication Committee and the officials of the A.M.A. as to the acceptability of a few advertisers and products. These physicians scrutinize each disputed product closely, reject more than they accept, and decide each doubtful case on its own merits, in good faith, without any regard whatever to pecuniary advantage, and according to their own interpretation of what constitutes ethical advertising. In a few instances they disagree with the *interpretation* and *application* of the Council's standards. The Publication Committee members have been identified with medical publishing for a number of years, and are thoroughly familiar with both sides of the mooted questions involved. They feel that they are fully able, and have the right, to fix policies for their own journal.

The editor of the *J.A.M.A.* bites with no rubber teeth! Passing over his allusions to "attack from the rear," and threats "from those who should be presumed to be friends," as the understandable irritability of a righteous man in the presence of great wickedness and perhaps goaded to the use of intemperate language by too frequent sojourns in Washington,* we quote again:

"The governing bodies of the medical societies of Illinois and New York and the councils and boards of trustees of the other medical societies *which are being urged by business managers to depart from the standards of the Council*[3] might well give more consideration to their responsibility to scientific medicine."

And well they might, if, *in fact*, this is the case.

The physicians of New York State recently gratuitously impugned as to their patriotism by the editor of the *J.A.M.A.* and threatened with induction by the same apparently inexhaustable fountain of righteousness, will, of course, lose no time in the investigation of the sources of the profit derived from advertising which makes possible the *J.A.M.A.* as well as the state medical journals and which helps to further the nonprofit activities of all medical societies.

Will the naughty business offices of the villainous medical journals prevail? Will the physicians of the Publication Committee who alone pass on the advertising in the *N.Y.S.J.M.* permit little Journalina to be tied to the railroad track with the CHICAGO EXPRESS coming?

Read the next installment of this thrilling editorial serial in the November 15 issue.

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[1] J.A.M.A. 123: No. 6: 354–355 (Oct. 9) 1943.

[2] Job 22: 15.

[3] Italics ours.—*Editor.*

* See *Dr. Pepys' Diary*, J.A.M.A., August 31, September 30, October 6, October 9.

Federal Medicine?

"Do we need Federal Medicine?" asks the *Saturday Evening Post* editorially,[1] referring to the new social security bill (*S.1161*), and more particularly to the section entitled "Federal Medical Hospitalization and Related Benefits."

"From the ambitious nature of the scheme, one might conclude that American medicine had never done anything for the indigent and that the one thing necessary to guarantee good health to all was the creation of a vast scheme for state medicine with more billions to spend than was considered necessary to run the whole country fifteen years ago. Actually, of course, the facts are just the opposite. Although so-called 'organized medicine,' as represented by the A.M.A. bureaucracy, has often failed to respond to the demand for wider distribution of medical care, the actual history of American medicine is a consistent record of expanded service, scientific advance, and social responsibility. All the way from the country doctor, who needs no Federal salary to get him out on a baby case at three in the morning, to group schemes like the Blue Cross hospital-payment plan, American medicine is trying to meet the health needs of the country. There is still need for progress in rural communities and among the poorer groups, and some medical societies still fail to see the advantages to the profession in prepaid medicine. But the trend is unmistakable and it would be tragic to divert it into politico-bureaucratic channels."

This is common sense. It is common sense where it is most needed, in a publication widely read by the people, the taxpayers, which is at liberty to take what position it pleases on questions of the day. It pleases to say forthrightly what the journals and other publications of organized medicine have been claiming for years: that the "undoubted needs of people who lack adequate medical care" can be taken care of "at a social cost lower than the 'coordination' of all medical services under government aegis."

In April we showed in these columns[2] the

extent of the "participation of the State of New York in medical, health, and welfare services. In these services, the state, the voluntary agencies, and the medical profession conduct a *cooperative enterprise*. . . . ." for the indigent and the medically indigent of the state. These services comprise:

Premarital examination of prospective fathers and mothers
Maternal welfare
(*a*) Treatment for syphilis
(*b*) Obstetric care
(*c*) Postpartum care
Treatment of Ophthalmia neonatorum
Well-baby clinics
Immunization services of various kinds
Care and rehabilitation of poliomyelitis patients
School medical services
(*a*) Physical examination
(*b*) Health education
(*c*) Specific medical services where needed
Special schools for handicapped children
Dental clinics in schools
Lunches, milk, and transportation for school children
Industrial hygiene supervision and rehabilitation
Workmen's compensation insurance
Medical care of the indigent
Old age assistance

Institutions providing care under state auspices are:

General hospitals, their clinics and wards
Mental hospitals
Tuberculosis hospitals
Cardiac institutions
Veterans' hospitals

Agencies supervising or assisting in provision of state care are:

State Health Department
State Welfare Department
Local welfare and health departments
State Education Department
State Department of Labor
State Department of Insurance
Public Health Nurses' Association
State Medical Society, local branches and county societies
Tuberculosis Association
Cancer Committee
Hospital expense insurance plans
Medical expense insurance plans
Industrial mutual aid plans

Diseases for which the state has assumed full or partial responsibility are:

Poliomyelitis
Tuberculosis
Blindness
Mental and nervous diseases
Cancer
Deafness
Cardiac disease

In addition, as the *Post* rightly adds: "Group medical service is growing rapidly around hospitals, business and industrial establishments, local political entities, and so on. To us, such schemes, with Federal support where needed, seem the reasonable way to bring about whatever changes are necessary in medical practice—natural evolution as opposed to some New Deal miracle having the typical political characteristics of unlimited promise and meager performance."

Medical expense indemnity insurance is already well under way, both the nonprofit organizations and a few commercial ventures in this field. Thus the lower income brackets above the level of indigency are being provided, as rapidly as seems consistent with sound actuarial practice and financing, with the opportunity to protect themselves from medical and surgical catastrophes.

As the *Post* continues: "If we can manage to keep our shirts on, the United States will shortly have plenty of group medicine, and with no fear that professional standards, local responsibility, and enthusiasm in experiment will be engulfed in a wave of bureaucracy."

Homely, common sense. More of the same wanted.

[1] Sept. 25, 1943, p. 112.
[2] New York State J. Med. 43: 610 (April 1) 1943.

Fetal Prophylaxis

The interests of the newborn baby are best served by measures that safeguard the health of the mother. These measures are sometimes chiefly preventative, as pointed out by nutrition experts. In disease syphilis offers the classic example of an infection of which both mother and fetus may be simultaneously cured. The antiluetic agent administered to the mother traverses the placental barrier and equally affects the fetus, ridding it of the insidious spirochetes. There are other drugs in common use, however, which have the same ability to enter the fetal circulation. Additional knowledge of such actions are of more than theoretic value.

In antepartum infections, as in syphilis, the fetus is exposed to the hazards of disease. It is now recognized that the fetus is poorly equipped for antibody formation and relies upon its mother for the passive transmission of protective antibodies.[1] If a maternal infection occurs at term, the outlook for the new born baby, separated from its mother, may be very serious. The organisms most commonly found in neonatal infections—the hemolytic streptococcus, Staphylococcus aureus, and the coliform bacilli—are amenable to sulfonamide therapy. Fortunately, these drugs are also effective against the gonococcus and have been employed in gonorrheal ophthalmia. Proof that the sulfonamide drugs are freely transmitted across the placenta has been provided.[2] Concentration of the drug is the same in the fetal and maternal bloods.

Since the unborn baby depends upon its mother for protective antibodies against disease,[3] measures that confer new or added protection to the baby through the mother should be utilized. A long step in this direction has been taken in the case of whooping cough. Relatively few babies are born with immunity to pertussis, and proof has been adduced that vaccination during pregnancy results in an effective titer of antibodies in the mother's blood, which is transmitted in newborn babies.[1] It is logical to deduce that such babies are at least for some time protected against whooping cough, a very serious disease in the infant. Perhaps the same method can be applied or extended to other infections to which the infant is ready prey and which are not amenable to chemotherapy. It heralds the opening of a new avenue in prophylactic therapy. The scope of fetal prophylaxis and intrauterine therapy has thus been widened and extended.

[1] Cohen, Philip, and Scadron, Samuel J.: J.A.M.A. 656: 662 (Feb. 27) 1943.
[2] Speert, H.: Am. J. Obst. & Gynec. 45: 200 (Feb.) 1943.
[3] Lichty, J. A., Jr., Katsampes, C. P., and Baum, W. S.: J. Pediat. 22: 549 (May) 1943.

Correspondence

104 EAST 40TH STREET
NEW YORK CITY 16
October 8, 1943

To the Editor:

In an article published in the JOURNAL (43: 1829 (Oct. 1) 1943) the author Leo A. Shifrin states as his opinion that "chancroid can most often be prevented by the soap and water scrub." Canizares and I at New York University and Bellevue Hospital, and Greenblatt, independently at the University of Georgia, have demonstrated by the use of both auto-inoculation material and culture that soap and water are valueless for this purpose. A report of this work will appear shortly in the *Journal of Syphilis, Gonorrhea and Venereal Diseases.*

Very truly yours,

FRANK C. COMBES

Announcement

1944 ANNUAL MEETING

Medical Society of the State of New York

The 138th Annual Meeting of the Medical Society of the State of New York will be held Monday, May 8, to Thursday, May 11, 1944, inclusive, at Hotel Pennsylvania in New York City.

COUNCIL COMMITTEE ON CONVENTION

EPIDEMIC KERATOCONJUNCTIVITIS

ARTHUR J. BEDELL, M.D., F.A.C.S., Albany

SINCE sending the title of this communication to the Chairman of the Section, several articles on epidemic keratoconjunctivitis have appeared in the *Journal of the American Medical Association*, special journals, and health bulletins.[1–15] The profession and many administrative heads of business have been bombarded with alarmist statements, directions for detection have been published, stampeded health departments have made the disease reportable, and some state compensation commissions have without, I fear, due study ruled that epidemic keratoconjunctivitis is an occupational disease.

Keratoconjunctivitis starts as an acute reaction involving the entire conjunctival surface. Sometimes, as in the severest forms described by Hogan and Crawford,[16] the eyelids are greatly swollen and edematous, and the conjunctiva is edematous with or without an adherent membrane. In others the local congestion is less intense, and the conjunctiva arranged in thick, dark pink or red folds consisting of coalescent follicles. In other forms separate, discrete but widely dispersed large follicles dominate the picture, while in still others the conjunctival congestion is slight, without or with fine follicles. After the acute stage subsides and frequently after a period when the eye is quiet, there is a severe exacerbation accompanied by dimness of vision which is found to be caused by infiltrates in the cornea.

Subjectively, the earliest symptom is the sensation of a foreign body in the eye and, objectively, a profuse lacrimation. Most often there is little or no pus during the entire course of the disease.

It is no wonder that in the early stages of an epidemic the patient who comes in complaining of a foreign body in his eye, with tears flowing down his face and a red eye, is treated for a foreign body although none is found. The smarting, burning pain has been likened to that which follows exposure of the eyes to mustard gas, ammonia vapor, or dilute chlorine. Some cases have been reported of corneal involvement which never had any sign of ocular irritation.

Stress has been placed on glandular enlargement as an essential criterion. This is unfortunate, for a great many patients have no gland change.

Practically all patients with an acutely distressing eye condition have some constitutional or neurological reactions ranging from a headache, the direct result of the occipito-frontalis and orbicularis spasms with the photophobia, to a general disinclination to move about, malaise, or even mild fever. These are common findings and should not be considered distinctive of any particular type of infection, certainly not pathognomonic of keratoconjunctivitis.

In opening the discussion of epidemic keratoconjunctivitis, it must be stated at the outset that this is not a new disease. Every ophthalmologist who has used the slit lamp as a routine has seen cases of corneal infiltrates identical to those found in the epidemic and, furthermore, as has been recently restated, similar spots follow conjunctival burns, ocular injuries, allergy, and bacterial infections.

The only suggestive characteristic end result is the corneal infiltrates, but before they develop other changes may be found in the cornea. Too little attention has been paid to the superficial alterations, which vary from minute microscopic pinpoint depressions in the epithelium to circular or comma-like epithelial loss. These may be so delicate that they do not stain with fluorescein or mercurochrome, are evanescent, frequently lasting only a few hours at the peak of the conjunctival reaction and often seen only at the beginning of the recrudescence. Rarely the epithelial surface is broken with a gray-edged loss which regenerates quickly. Corneal ulcers have been conspicuous by their absence in the cases in our vicinity and even when present they soon disappear.

The predominant form of corneal change is beneath the corneal epithelium and external to the corneal nerves. Probably the greatest number of infiltrates are confined to Bowman's membrane, but others, particularly the largest ones, invade the contiguous layers of the cornea. In consistency they vary from a few scattered granules collected in a spot to thick, opaque, granular, gray-white plaques more than 1 millimeter in size. There are all sizes between the two extremes. The large ones can be seen without the aid of a lens or loop, and the smaller ones can be seen with the ophthalmoscope using a +20 lens. However, it must be stressed that the accurate and sometimes the only way to diagnose the corneal phase of the disease is with the slit lamp.

The geographic location of the infiltrates is, as a rule, fairly well established as the zone where the cornea is exposed in the palpebral fissure. Incidentally, they are especially numerous in the region farthest from peripheral nourishment.

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 5, 1943.

Obviously, the spots are best seen against a dark background and, therefore, are most commonly said to occupy the pupillary area. Careful examination, however, will show them in a much larger circle, although they rarely extend to the limbus. I have not seen any comparable opacities in the conjunctiva even when the cornea is completely covered with dense spots of large size.

The infiltrates are not vascular, and at no time in the course of the disease have I observed any increase in the limbus palisade structure. They exhibit no tendency to coalesce, and there are no corneal hemorrhages.

Case Reports

Case 1.—To make this presentation more concrete, consider the case of R. H., a healthy appearing 31-year-old man, not a shipyard worker or an industrial plant employee but instead a man who lives outdoors much of the time. He had had no contact with any known or particular source of infection, although he had been in the crowded New York City subways, which must be considered as a potent source of contamination. A month after he had been under treatment he learned that a man living in the same large New York City apartment house was supposed to have had the disease. It is to be recorded that he had never seen that person. The patient was practically never ill and was without ocular signs or symptoms until five days before he was first examined, when he had what he described as a cold, with a watery eye. The next day the left eye became red and tears streamed down his face, with some discharge.

On examination the left eyelids were slightly edematous and congested. Lacrimation was profuse, with only a trace of mucopus. There was marked conjunctival congestion with moderate edema and fine, widely dispersed follicles on the tarsal, palpebral, and cul-de-sac conjunctiva. The cornea was smooth, glistening, and devoid of any infiltrations or surface opacities.

There were no palpable glandular enlargements or tender nodes, and there was no sensation of a foreign body.

Two days later, the palpebral and bulbar conjunctiva of the right eye was congested with a few scattered follicles. The cornea was clear. The vision was 6/15. The injection and edema of the conjunctiva of the left eye were less.

The irritative symptoms and evidence of conjunctival reaction steadily diminished until the ninth day of observation—the fourteenth day since the onset—when the patient reported to my office because of blurred vision in the right eye, which was reduced to 6/6D. There were many fine, white, granular specks, like small commas, of corneal epithelium roughness. These were especially disposed over the center of the cornea in the pupillary region. As in the beginning, the 3 mm. pupil was negative and reacted promptly to light and accommodation. There were no free cells in the aqueous and the iris was of normal color. The fundus was negative, the disk clearly and distinctly outlined. The conjunctiva was much paler and appeared almost entirely healed. The lacrimation and the photophobia were slight.

Two weeks later, the right eye was almost white and there was no photophobia. The left cornea showed several subepithelial grouped opacities. The epithelial surface was smooth, with the exception of one rough spot.

Forty-six days after onset, in the right cornea there were a few discrete opacities external to the corneal nerves and all definitely deeper than the epithelial layer. These spots varied in size from one just visible with the high-power slit lamp lenses to one about 0.5 mm. in size. They were all granular-gray with well-defined borders and all seemingly in the same level of the corneal structure.

The left eye was free from irritation. The deposits in the cornea were larger than those in the right but otherwise they were the same in position and of the same structure.

Gradually, but steadily, the eye became normal. When the patient was last seen, four months after the onset, the vision of the right eye with −1.00 was 6/5. The corneal spots were unchanged either in number or in individual size.

The vision in the left eye was 6/6 with −50 6/5, and although the globe was free from irritation, the corneal infiltrates remained unaltered. At no time during the entire period of observation was there any adenopathy.

In this case it is to be noted that the fine epithelial losses were followed by deeper infiltrates. The conjunctival irritation was followed by corneal infiltrations identical to those which for years have been called nummular keratitis. When zur Nedden saw the early cases in the German epidemic of 1938, he diagnosed the condition as nummular keratitis. He later wrote about the massive follicular swellings of the conjunctiva, subconjunctival chemosis, and small, round, punctiform flecks.[11]

Case 2.—Twelve days after a foreign body was removed from the right cornea of a 30-year-old mechanic, the eye became red and irritable, with profuse lacrimation and photophobia. When the patient was seen, the entire conjunctiva was red with many follicles arranged in ridges with very little mucous and no glandular swellings. This quickly subsided, leaving several corneal infiltrates.

This was the only case in a plant where 500 men were reprocessing tools. This most certainly suggests that the workers were either immune or that this particular type of infection was not especially virulent. Of interest is the fact that many patients with foreign bodies in their eyes were constantly reporting for treatment, and the foreign bodies were removed under identical conditions, yet he was the only one affected.

So much has been written about industrial workers as victims of the disease that some cases are epitomized.

Case 3.—A 43-year-old toolmaker had the sensation of a foreign body in his right eye and was told by his physician that he had oil and emery in his eye. This happened six days before he came under my personal care. He was in excellent health and had not been in contact with any other eye case.

He presented, with an intense congestion, edema of the entire conjunctiva of the right eye. The photophobia and lacrimation were extreme. The vision through tears was 5/30. The cornea was clear under the slit lamp.

Eleven days later he was so improved that he had no bulbar congestion or excess lacrimation, and it was not until forty-three days had elapsed that he returned because his vision was reduced to 6/7.5. The typical corneal infiltrates were then present. In six weeks the infiltrates were definitely smaller and fewer. The vision was 6/6, and the patient was symptomatically cured.

This man never developed any changes in his left eye.

Case 4.—Another case was that of a 37-year-old man who, while working in a large plant, never even saw anyone with a sore eye in his building or about the shop. He had no foreign body removed from his eye, nor was he in the dispensary previous to the outbreak of his infection.

The right eye was first red, sore, and watery, with a scratchy sensation. Five days later, the left eye was watery with a tendency to stickiness of the lids.

When the patient was seen twenty-one days after the onset, the vision of the right eye was 6/12. The globe and lids were free from congestion. There were innumerable gray spots of various sizes in the cornea. Many of them were visible to the naked eye and all, when examined under the slit lamp, were found in the most anterior layers of the corneal stroma close to Bowman's membrane. The pupil was 5.5 mm. and reacted slowly to light, the result of atropine which had been used elsewhere. The fundus was negative.

The left eye was a replica of the right.

Seven months later there was no change in the number or size of the infiltrates.

Case 5.—Another case was that of a man, 41 years old, whose right eye became red about a week and a half after a piece of steel was removed at the hospital.

In the right eye vision was 6/6. The entire conjunctiva was congested and watery without secretion; many fine follicles were scattered all over the tarsal portion. With the exception of a very faint epithelial haze of the cornea, the eye was negative. There was a small, superficial right parotid gland.

The left eye was uninvolved then or at any other time.

When last seen, five months later, there were several large corneal infiltrates.

This patient had a foreign body removed from his cornea and developed the keratitis only in the traumatized eye, but that does not prove that the disease would not have developed nor does it exclude the possibility that it was already present.

Illustrative cases could be cited for hours, but the dominant symptoms are always the same. In some the corneal infiltrates appear while the eye is still congested; in others, after a period of complete abatement of all symptoms there is a return of the lacrimation and the photophobia. The conjunctiva becomes injected, and the cornea shows, for the first time, the typical infiltrates. For this reason it is necessary to reserve judgment for several days before committing oneself as to the outcome. Too hasty a conclusion has led to the report of cures which later proved to be mere recessions.

That the disease is endemic is well illustrated by a woman whom I first saw twenty-five years ago with infiltrates similar to those now considered diagnostic of this disease. She still has them.

The most common initial symptom is the sensation of a foreign body, and, although there is no doubt that many patients have had a foreign body removed from the conjunctiva or cornea, it must be accepted by all scientific ophthalmologists that a coincident, minute conjunctival foreign body may be found in a patient suffering from keratoconjunctivitis. I have seen well-formed corneal infiltrates in patients who have had a corneal foreign body only a few hours before I saw them.

No authentic case is on record in which the corneal infiltrates started at the place where a foreign body had been removed, and this evidence must be considered when such an injury is claimed to be the cause.

Analysis of the reported cases must be made in a careful, judicial manner and not be an attempt to juggle or misread statistics so as to substantiate previously formed conclusions.

In an uncomplicated case, the iris is not involved nor are there any deep ocular changes. I have seen only one case in which a latent uveitis was activated.

The length of disability reflects the patient's desire to work as well as the local reaction.

The fact that many employees of large manufacturing concerns acquire the disease is by no means conclusive proof that it is an occupational disease, but rather it is evidence that the community is the source. If, for instance, 45 per cent of the population of a community were employed in large shops and 4 per cent of them became infected, would it be reasonable to suppose that the occupational hazard was not as great for all? If 4 per cent of the local population had the disease, would it not be rational to conclude that it was a community infection?

In a large manufacturing establishment where many men had the disease the incidence among women was remarkably low.

Other observers have spoken about women patients, especially housewives, but the disparity

between the sexes is worthy of special comment and cannot be waved aside by the statement that women are not engaged in the dirty work. Both men and women employed in clean, clerical positions have reported with the disease.

Case 6.—In a 56-year-old woman office worker the right eye became involved and four days later the left was attacked. The primary symptom was the sensation of a foreign body. The eye was sore for two days, with profuse lacrimation for four days. It was then fairly quiet for three days, when there were visible corneal opacities. During the interim she had had three injections of serum. Now, several months later, the vision is 6/6 in each eye, and there are many spots in the right cornea and a few in the left.

Physicians and hospital attendants are not immune. Several of each class have been affected. To my knowledge, at least 12 physicians have been victims.

Furthermore, if 500 men were employed in one shop and only one man became infected, would that one be an occupational infection? I am sure that all will admit that individual susceptibility is the underlying factor and not the work, and will concede that the workers in this shop were in the community at large, and moreover, that any of the workers might have acquired the disease outside of the shop. This is well borne out by studying the world epidemics in regions where the disease is endemic, as for example, in India, where, under certain ill-defined conditions, thousands of cases develop in persons not employed in factory or shop.

Too little attention has been given to the general physical well-being and susceptibility and too much stress placed on one factor—the shop where the workers collect. In this war there have been many thousands who have rushed to industrial plants, often unfitted for the new job either by experience or adaptability. Added to these energy-reducing factors are those associated with inadequate housing, insufficient food, and limited relaxation—a conglomeration of all manner of people producing in their temporary homes the conditions which have bred the active agent, perhaps a virus. The scientific view can only be that this disease is communal and not occupational.

Certainly it is not caused by any given chemical manufacturing process, or any other evident direct contact in the factory.

The concept has been advanced that it was caused by specific work. Even the severe West Coast epidemic was a community affair and was not by any means confined to workers in industrial establishments. No one has proved that outside congregations were blameless or that a particular occupation was responsible. The early suggestion that it was a welders' disease, only advanced because there was much welding in a given plant, was soon discarded—an inaccurate conclusion based on a false premise. Many other similar untrue assumptions have appeared in the press, such as the name, "shipyard" conjunctivitis.

In another place, I shall write about the distribution of keratoconjunctivitis, but fortunately for us Dr. Murray Sanders, who has done much work in an effort to determine the cause, has consented to open this discussion, so that I shall make no pronouncements on etiology except to state that the theories advanced include among others chemical and toxin allergy and the unsatisfactory hygienic surroundings just mentioned, as well as activation of a latent infection produced by certain lighting. This is similar to the clinically demonstrable fact that a quiescent malaria becomes manifest when the patient is in the clear, bright sunshine of high mountains.

The epidemic of keratoconjunctivitis is now subsiding—in fact, has almost stopped in New York state—whether because of meteorological or other conditions, including the exhaustion of the susceptibles is not determined. But one should note particularly that fresh material has been supplied in the way of new employees in the same shop surroundings. A new outbreak may dispel this optimism.

As the theories of the cause of the disease are numerous, so the types of treatments are many and varied. Some have advised atropine. It has been of no value in the cases for which we have recommended it, and there were several.

Nitrate of silver and other silver salts were tried and early discarded as inefficient. Sulfathiazole has many advocates, and I feel that a 5 per cent aqueous solution of sodium sulfathiazole, 2 drops in the lower outer cul-de-sac every two hours, has reduced the discomfort, hastened conjunctival resolution, and maybe even shortened the period of convalescence. Adrenalin chloride, 1:100 solution, every three hours has helped some, and it may be that the oral administration of ten minims of this will provide another acceptable addition to the general care. For the persistent irritation, which is not unlike an acute allergic conjunctivitis, holocaine, pontocaine, and similar drugs are indicated. Some patients were relieved by hot compresses, others by ice packs. All have been given high caloric diet with supplemental vitamin fortification in various forms, including B, mixture and yeast.

Treatment

No treatment has succeeded in preventing the corneal infiltrates. There is no specific cure. Time, the great healer, is the most important

factor, and although the spots may not disappear, vision usually improves under correct hygienic measures. Locally, dionin seems of little value.

During the acute stage, the patient should be kept from his work because the abundant tears dripping onto his hands may transmit the unknown causative agent to others as well as reduce the visual sharpness to a point where workers about machines are exposed to increased occupational hazards. Obviously, this does not apply to those in outside employment. Too much optimism about a complete cure should not be expressed before the patient, for it must be remembered that the corneal infiltrations follow a remission in the acute symptoms even as late as forty days after apparent recovery.

The end results will be in evidence for a long time. I have seen corneal infiltrates remain unchanged for months, and I have also seen them lessen, but up to the present time very few have entirely disappeared.

Keratitis superficialis, herpes cornea, herpes zoster, keratitis disciformis, Beal's conjunctivitis, acute catarrhal conjunctivitis, conjunctivitis from nasal infection, mild or unrecognized dacryocystitis, and nummular keratitis must be differentiated from keratoconjunctivitis. The differential diagnosis is not especially difficult when all observers are on the alert, but even then it must be recognized that it takes time for the cornea to show the changes. The general practitioner must be on guard so as not to call the deposits on the posterior surface of the cornea, which are characteristic of uveitis, corneal infiltrates

My follow-up of the cases treated by serums has not been sufficiently favorable to advise their use at this time and, furthermore, it must be recognized that such serums are a possible source of terrible catastrophes.

I am reluctant to endorse the statement that physicians, hospitals, and office attendants have spread the infection, for there is abundant proof to the contrary.

The entire question of virus is so large and the possibilities of discoveries are so entrancing that we may even now be in the midst of some of the great advances in medicine. I can only say that I am as yet not convinced, but by no means unconscious, of the implications of the work of Sanders, Thygeson, and others.

Conclusions

Epidemic keratoconjunctivitis, a previously recognized disease, has assumed a new significance in the past few years because of severe outbreaks Considerable ocular distress, profuse lacrimation, a few days of incapacity, and sometimes visual loss are the usual accompaniments. Reports of causes and cures have been published. However, I subscribe to Thygeson's statement: "It seems probable that it is a virus disease, and the work of Sanders and of Sanders and Alexander, if confirmed, would appear to establish it as such."

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Discussion

Major Murray Sanders, M.C., *New York:* (by invitation)—The first point I should like to make is that the occupational relationship of epidemic keratoconjunctivitis has not been clearly defined The only interest which investigators have had in this phase of the problem is in the presence of the disease in crowded industrial areas where it would be a threat to the war effort.

However, I would take exception to Dr. Bedell's statement which implies that this disease is definitely not an occupational one Regardless of what one's view is concerning the cause of epidemic keratoconjunctivitis, I think all are agreed that it is an infectious disease which is spread by contact If conditions within a given factory are such as to facilitate the spread of a disease, that disease becomes an occupational hazard With respect to the analogy which has been made concerning the incidence in a factory or a community, it must be remembered that the figures quoted by Dr Bedell are hypothetical By the same token, since this disease is due to an infectious agent, exposure is not limited to a single locale. Certainly, I am in agreement with Dr. Bedell that there is no reason to suspect that this disease is caused by specific work.

So far as glandular enlargement is concerned, I have been told both by Dr. Phillips Thygeson and Dr. Alson Braley that they consider this sign an important diagnostic criterion of the disease In my own experience, this has been true Whether or not it is an essential criterion again remains a point to be determined in the future

As to the possibility that epidemic keratoconjunctivitis is not a new disease, let me say this: my concept of infection would lead me to base a specific diagnosis not on clinical appearance alone but on a combination of clinical and laboratory findings If this concept is acceptable, then the designation

of epidemic keratoconjunctivitis as an "old" or "new" disease could be based retrospectively only on the demonstration of antibodies to the specific infectious agent. Since this has not been done, it would seem we cannot state definitely that the disease is an old one. We do know that a virus isolated in New York has been neutralized by convalescent serum from patients who suffered with epidemic keratoconjunctivitis in various parts of the country. Since ocular infection due to several causative agents may produce similar clinical pictures, it seems to me that too much stress cannot be placed upon demonstration of immune bodies as a means of placing eye diseases in definite categories.

In conclusion, I should like to thank the Medical Society of the State of New York for their kind invitation to appear here today. I wish to thank Dr. Bedell for the privilege of hearing an excellent clinical description of a disease in which I am greatly interested and which may be of importance in the future.

AID TO STOP BLEEDING

Help in stopping bleeding during operations on the brain or elsewhere has been discovered in a new type of specially treated cotton, called oxidized cellulose. Dr. Virginia Frantz, of the Department of Surgery, College of Physicians and Surgeons, Columbia University, has shown experimentally that this new material, unlike cotton, is absorbed when left implanted in the body.

Pledgets of the material soaked in thrombin have been used successfully to stop bleeding in thirty operations by Dr. Tracy J. Putnam, of the Neurological Institute and the College of Physicians and Surgeons, Columbia University.

It is the thrombin, and not the oxidized cellulose, which stops the bleeding. Cellulose oxidized with nitrogen dioxide, however, gives the surgeon a better method than ever before for using the blood-clotting thrombin to check hemorrhage.

Developed about a year ago by Dr. W. O. Kenyon, C. C. Unruh, and Edward C. Yackel, of the Eastman Kodak Research Laboratories, the new type of oxidized cellulose has found its first publicly announced use in this lifesaving application, though an earlier report suggests a possible future use in the fight against germ disease. Its birth in an industrial chemical laboratory and Dr. Putnam's report that it became available for surgical use "by a fortunate coincidence" suggest, however, that it may be finding other, as yet unannounced, uses in war industry.

Cellulose oxidized by nitrogen dioxide is a fluffy white material, which looks like cotton wool. It has certain unique properties which make it especially useful to the surgeon. It dissolves slowly in slightly alkaline fluids such as blood. It is absorbed by the body from various tissues, including the brain, without causing inflammation of any consequence, as was shown by Dr. Frantz. It can be sterilized by boiling for three minutes and can be kept in 70 per cent alcohol until needed.

Further important medical and surgical uses for it are foreseen by Dr. Putnam.

"Thin sheets of such treated cellulose," he states, "might be used to control bleeding from the cut surface of parenchymatous organs; for example, the bed of the gallbladder. A similar gauze might be used in skin grafting. For first aid use in the field, an antiseptic such as sulfapyridine, penicillin, or gramacidin might be added to such tampons for packing deep wounds."

Dr. Putnam used this material by saturating it in a solution of the blood-clotting thrombin. Tiny pledgets were made by teasing out and folding the wet cotton.

The troublesome and often dangerous bleeding points during brain operations were first plugged with moist ordinary cotton and this was sucked dry. The pledget containing thrombin was then rapidly substituted for the cotton plug and covered with another piece of moist cotton, which in turn was sucked dry by special surgical suction apparatus. Even with active bleeding from an artery, Dr. Putnam reports, this second tampon or plug could usually be removed within a minute, leaving the treated cellulose solidly clotted.

The role of thrombin in the clotting of blood when it is shed has long been known, and purified preparations have been available for some time to aid in checking hemorrhage. Its practical use in surgery, however, has been limited by difficulties of application.

When fluid preparations are used, Dr. Putnam explains, the clot which is formed in less than a second with flowing blood is apt to be washed away before it can stick to the cut, even though the blood flow is no more than an ooze. If the thrombin is applied on plugs or pledgets of ordinary cotton, the bleeding is checked even under adverse conditions, but if the pledget is removed the hemorrhage usually begins again at once.

The new type of cellulose, however, need not be removed, since the body can absorb it without injury. This means that the clot formed through the action of the thrombin need not be disturbed and can remain in place to stop bleeding effectively.
—*Science News Letter*

TUBERCULOSIS—A DISEASE OF OLDER, OCCUPIED MEN

So much emphasis has been placed on tuberculosis as a serious disease of girls and young women that its greater havoc among men has not received the attention that it deserves. As a result of the more rapid decline of tuberculosis in females in this country, there are today 132 deaths among males to every 100 deaths in females, and only at ages 10 to 30 is the mortality higher in females.—*The Modern Attack on Tuberculosis, by Henry D. Chadwick, M.D., and Alton S. Pope, M.D.*

ELECTRIC SHOCK THERAPY IN MANIC DEPRESSIVE PSYCHOSES

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THIS paper concerns a small number of cases, but it is hoped by the writer that it will add its bit to the material which will aid in the evaluation of electric shock therapy. The patients were all hospitalized during the period of treatment at Brigham Hall Hospital. I wish here to express my gratitude to my colleague, Dr. Frederick C. Robbins, for his assistance in innumerable ways.

In preparation, I have consulted articles in the journals and have been interested in points of difference and similarity. The predominant point of view is one in which we concur—that the treatment is not in itself a specific cure but that it does, in some way, help the patient to break through and to attain a degree of reasonableness and perspective that will make psychotherapeutic measures available.

I quote from a review of shock therapy for the mentally ill in the *American Journal of Medical Sciences* for 1942, the section edited by F. K. Ebaugh:

"In general, most workers reporting seem to agree that the following factors are necessary for the most satisfactory results from shock therapy: (1) an illness of acute onset and short duration, preferably under six months, not longer than one year; (2) the presence of affective factors in the psychosis; (3) an adequate prepsychotic personality; (4) the presence of exogenous, as opposed to endogenous, precipitating factors; (5) an attempted heterosexual adjustment; and (6) the absence of hallucinations and dereistic thinking."[1]

The point brought out by R. E. Hemphill, Bristol Hospital, in the *Lancet*, is well taken, that permanency of improvement demands, along with improvement of the patient, that external psychogenic factors must be readjusted. The treatment not only of the patient but of the patient in his setting is essential.[2] Dr. Meyer used to tell his students that the problem is always the same. We have an individual unable to adjust in his given situation. What is the matter with the individual? What is the matter with the environment and what can be done about it?

Electric shock therapy helps greatly in what can be done about it—for the patient—in many cases shortening the period of hospitalization and if not that, making possible better eating and sleeping habits and more orderly behavior. It is also something definite for the hospital to offer to the family of the patient.

Our series included 37 cases, 13 men and 24 women.

The diagnoses were manic depressive, depressed, 10 cases; manic depressive, manic, 14 cases; manic depressive, mixed, 11 cases; circular, 1; perplexed, 1. Three cases were considered chronic, each of which showed temporary improvement on treatment in recurring attacks. One case showing a manic reaction, made a fair social recovery, but died of exhaustion during relapse eighteen months after leaving the hospital. In only three cases did we feel there was no improvement, and these three cases were either chronic or showed schizophrenic reactions. One was the case of a soldier who was transferred to another hospital during his acute attack. I understand he is now showing slow improvement following electric shock therapy combined with insulin. On further study his case appears to be considered catatonic praecox rather than manic depressive.

The duration of illness before treatment varies from one month to six years. The cases that showed the best recovery were those of short duration.

Out of our group of 37, 7 were young mothers, the ages of their babies varying from one to fourteen months when the mother was hospitalized. All have shown improvement, two are considered recovered, one has made a social recovery, and two are at present in residence and are doing well. The only patient of this type not to receive shock treatment, a mother with a four month's old baby, has not recovered although she has been hospitalized for six months.

Of those patients whom we treated in 1941 and 1942 who have been away from the hospital from nine to eighteen months, 10 are considered recovered, 7 have made social recovery, and 3 have shown relapse. These figures do not vary markedly from those representing a similar series of patients who did not receive shock treatment.

We have not included in this list involutional melancholia. Two of our patients with manic depressive psychosis had had previous attacks, and although they were in the menopausal period, they were not so classified because of their previous history. Thirteen cases of involutional melancholia have been treated without great success. Three have made social recoveries, and one, according to a letter received from her sister, may be considered a recovery. Improvement has been slow in all the cases. Two com-

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mitted suicide when apparently making satisfactory adjustments. One is still under the care of a nurse at home, and 2 have required hospitalization after being tried at home. One is in residence at the present time. Of 5 cases of involutional melancholia treated without shock, our records show 1 social recovery, 2 improved. One died of gastric ulcer and one committed suicide eighteen months after leaving the hospital, during what appeared to be a social recovery.

As I said before, the fact that this is a small group of patients and the fact that statistics show similar results in untreated cases, raises the question as to the value of this treatment.

When I was a student in pediatrics, we were told that a healthy child could eat and digest almost anything but that the failure by delicate children to digest certain articles of food showed what foods were the more difficult to care for.

By a similar process of reasoning, therefore, we may admit that in dealing with the affective psychoses a certain percentage of cases will show recovery quite promptly with or without shock treatment. If we consider cases of long duration that show no spontaneous remissions or those in such poor contact that psychotherapy is not practical and if we find that the electric shock treatment hastens recovery in these cases, we are justified in feeling that even in the cases in which it cannot be so clearly demonstrated, it is of value.

In our series we have had no serious accidents. One patient dislocated her jaw, and 3 showed such poor cardiac reactions that treatment was discontinued although electrocardiograms showed no sufficient reason for the difficulty. One patient required artificial respiration due to prolonged apnea, together with almost complete cessation of circulation. A number of times it was felt advisable to give coramine to counteract long continued postconvulsive apnea.

Our plan is to give 3 treatments a week. Early in our experience we tapered the treatment. We now discontinue treatments altogether when improvement is noted, sometimes resuming a full schedule of treatments after a rest period. Sometimes only a short second series is required if improvement has not been held. In a few chronic cases the treatment is used symptomatically, just sufficient to keep the patient well and manageable.

The highest number of treatments given a patient was 78, spread over 4 series. The lowest number with successful termination was 2, one of them being a convulsive dose. A few cases we attempted to handle with subconvulsive doses because of age or questionable cardiac condition. Improvement was slow though usually apparent. The patient who received the 78 shocks would be handled differently now because when a patient is resistant to the treatment we now give a double shock if necessary. It was not until the higher dosage was reached in her case, and in another, that improvement became marked. It is frequently noted that the greatest improvement follows the convulsive dose. Seldom, however, does a subconvulsive dose produce confusion as in metrazol therapy. Unusually high dosage required to produce the seizure seems to be associated with slower, more uncertain recovery. Our dosage ranged from 70 volts at 0.10 second to a double shock of 120 volts at 0.15 second each.

An early sign of improvement under treatment is improved appetite, more responsibility for personal habits, more normal sleep cycle, and better cooperation. Occasionally a swing to the opposite phase of the illness is temporarily noted, the depressed cases becoming hypomanic and the manic cases tearful.

Memory defect varies in different cases. During the treatment period it interferes with the patient's living. He forgets what he has done or asked and repeats indefinitely. He requires new teaching of the same thing in the shop day after day. He cannot recall visits of relatives.

This phase passes and only areas of amnesia show up, most of them concerning the time of the illness but a few involving some special episode before hospitalization occurred. In no case has it interfered with the patient's life after recovery.

A number of articles have stressed the lack of fear on the part of the patient for this type of treatment. It has not been our experience that this is completely lacking. The fear is not as excessive as that seen in metrazol treatment, and it varies in individuals. It usually increases in direct proportion to the return to normal of the patient. The thing that is dreaded is the confusion and disorientation and sense of reawakening.

Dr. Joachim Flescher, of Rome, Italy, writing in the *Journal of Nervous and Mental Diseases* discusses the question of the curative effect of fear. He feels that it should not be considered curative. He points out the fact that the usual attitude of the patient on awakening is one of astonishment or friendly interest. "Through the discharge of the death or destructive drives," Dr. Flescher says, "the quantitative relation between them and the Eros changes in favor of the latter. To conclude we will state that by the discharging function of the artificial epileptiform attacks we have obtained a means to convey huge amounts of energy inherent to the death and destructive drives and to unload them in an individually and socially harmless manner."[3]

The statement of Dr. Cheney concerning insulin, found in the *Review*, previously mentioned,

is applicable to electric shock: "Insulin does not have specific curative effect, but it may bring about changes that accelerate or facilitate improvement in those who have the constitutional capacity for such improvement or recovery."[1] By simple analogy the effect is somewhat like that seen in magnetizing a rod of iron by hammering.

Prognosis is best in early cases and in those showing affective disturbances. Again we make the point that the value of the treatment lies in accelerating good results. As Dr. Foster Kennedy said last year in New York, "With this treatment we can accelerate the return of a patient to his normal, but we do not make him over. If he has reacted to strain with a psychosis, he will continue to do so unless psychotherapy and control of his environment are successful."[6]

Summary

Thirty-seven cases of manic depressive psychosis were treated with electric shock therapy. Out of 20 followed for nine months to eighteen months from the time of leaving the hospital, 10 are considered recovered, 7 to have made a social recovery, and 3 have shown serious relapse. The frank affective reactions show the best recovery rate, while those with schizophrenic features show improvement but not so marked. Treatment early in the illness brings best results. Chronic cases show temporary improvement, making them more manageable. Psychotherapy and adjustment of psychogenic factors in environment are necessary for permanent recovery.

That a group of 13 cases of involutional psychosis showed only one recovery and 3 social recoveries is included to give a basis for comparison of results.

It is felt by us that there is real value in this form of treatment. It does not, however, do away with the need for careful psychotherapeutic measures directed toward the patient's own reactions and the psychogenic factors in his situation.

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A STUDY OF OVER TWO THOUSAND CASES OF ELECTROFIT-TREATED PATIENTS

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WE INTRODUCED electrofit therapy in the United States in February, 1940.[1] Since then many thousands have been treated by this method, but only about 4,000 cases have been fully reported in the literature. Of the available cases only 2,377 were found suitable for statistical analysis.

Since the original publication of Cerletti and Bini in 1938, about 350 articles have appeared on the subject. Most of these articles deal with immediate results. A number of them discuss the modification of the convulsion to prevent fractures.[3–11] Others relate to complications,[2] electroencephalographic[12,13] and electrocardiographic[14,15] studies, pathologic findings,[16] animal experimentation,[17–20] etc. In spite of the widespread interest in the subject and the numerous publications on it, a standard technic has not as yet been evolved. Recently[21] it was asserted that schizophrenic patients should receive at least 20 treatments and up to 30 treatments. According to some authors, even though a schizophrenic recovers with a few treatments, he should receive at least 20 treatments to prevent relapse.

There is some divergence of opinion regarding the efficacy of electrofit for the treatment of the manic phase of manic-depressive psychosis. Some advocate that these patients should not be treated by electrofit.[22] Our statistics, however, show that the recovery rate in manics is about the same as that of the depressed; therefore, electrofit appears to be indicated in the treatment of these patients.

We are still trying to find the best method of treatment to reduce fractures, especially those of

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TABLE 1.—SCHIZOPHRENIA: COMPARISON OF IMMEDIATE RESULTS ACCORDING TO DURATION OF ILLNESS

	Number	Recovered	Percentage	Much Improved and Improved	Percentage	Unimproved	Percentage
Acute							
Electrofit	391	105	26.6	195	49.8	91	23.6
Metrazol	135	13	09.6	84	62.2	38	28.2
Insulin	169	51	30.0	69	41.0	46	27.0
Subacute							
Electrofit	128	25	7.7	180	54.8	123	37.5
Metrazol	359	4	1.1	163	45.4	192	63.5
Insulin	351	58	16.5	124	35.3	169	48.2
Chronic							
Electrofit	412	33	8.0	125	30.3	254	61.7
Metrazol	640	1	0.2	145	22.6	494	77.2
Insulin	475	23	4.8	147	30.9	305	64.3

TABLE 2A.—SCHIZOPHRENIA: IMPROVEMENT RATE ACCORDING TO DIAGNOSIS AND DURATION OF ILLNESS
(From Ross, Based on 1,039 Cases Treated with Insulin)

	Recovered—Percentage			Total Improved—Percentage		
	Hebephrenic	Catatonic	Paranoid	Hebephrenic	Catatonic	Paranoid
1–6 months	33	34	24	75	75	61
6–12 months	17	28	17	52	54	49
1 year	10	11	11	33	49	51
2 years	3	4	9	40	33	34
3 years	7	3	3	29	37	46
4 years	1	0	8	40	23	52
5 years and over	0	8	3	29	29	25

the thoracic region. Curare seems to have certain disadvantages. (See section on fractures, page 2060).

It is now established that the electrofit is the method of choice in the treatment of the affective disorders—namely, involutional melancholia and manic-depressive psychosis. We might add that it probably should also be preferred for the treatment of anxiety states. Many authors claim that insulin is best for the schizophrenic group.[23] Longer courses of electrofit in schizophrenics as advocated might give better results.

Comparative Results in Schizophrenia

We have tabulated the results according to the duration of the illness (Tables 1 and 2). This gives, we believe, a truer picture of the problem. Table 1 shows that in acute schizophrenia (of less than six months' duration) the recovery rate for insulin is 30 per cent, electrofit 26.6 per cent, and metrazol 9.6 per cent. In the subacute cases (patients who are ill from six to twenty-four months) the recovery rate is 16.5 per cent for insulin, 7.7 per cent for electrofit, and 1.1 per cent for metrazol. In the chronic patients (ill more than twenty-four months) the recovery rate is 8.0 per cent for electrofit, 4.8 per cent for insulin, and 0.2 per cent for metrazol. These results indicate that insulin appears to be better in the treatment of acute and subacute schizophrenia, so far as recovery is concerned.

When total improvement is considered, it is seen that in the acute cases it is 76.6 per cent for electrofit, 73 per cent for insulin, and 71.8 per cent for metrazol. This seems to show that for improvement the efficacy of the three methods is about the same. For the subacute and chronic cases, the total improvement rate runs in about the same manner. The reason for the higher recovery rate with insulin contrasted to electrofit in the acute and subacute cases is unknown. One factor may be the fact that insulin patients are more intensively treated.

In 1941 there were in the New York civil state hospitals 48,772 cases of dementia praecox under (nonshock) treatment.[24] Among this group only 1.1 per cent recovered. This is much less than the 26.6 per cent recovery rate for electrofit patients.

The profession is of the impression that the catatonic form of schizophrenia responds better to the electrofit than the paranoid and the hebephrenic types. Tables 2a and 2b, relative to this problem show that these cases are considered both from duration of illness and diagnosis. There is hardly any variation in their rate of recovery or improvement. Catatonic and paranoid schizophrenia usually start in a dramatic way, so that their onset can easily be established in most cases. On the other hand the simple and hebephrenia forms start more or less insidiously, and their onset is difficult to determine. By the time they come under treatment most of them are already in the chronic stages. This probably accounts for the impression that the simple and hebephrenic types of schizophrenia respond less

TABLE 2B.—ELECTROFIT: IMPROVEMENT RATE ON 91 CASES OF SCHIZOPHRENIA ACCORDING TO DIAGNOSIS AND DURATION OF TREATMENT

	Recovered—Percentage				Total Improved—Percentage			
	Simple	Hebephrenic	Catatonic	Paranoid	Simple	Hebephrenic	Catatonic	Paranoid
1–6 months	...	0.00	71.4	47.4	...	100.0	100.0	79.0
6–24 months	0.00	25.00	33.3	25.0	66.6	75.0	100.0	70.0
Over 24 months	33.3	0.00	0.00	0.00	33.3	35.7	33.3	36.4

TABLE 3A.—ELECTROFIT: RESULTS OF MANIC-DEPRESSIVE PSYCHOSES, DEPRESSED

Total	Recovered	Percentage	Much Improved and Improved	Percentage	Unimproved	Percentage
658	370	57	227	34	61	9

TABLE 3B.—ELECTROFIT: RESULTS IN MANIC-DEPRESSIVE PHYCOSES, MANIC

Total	Recovered	Percentage	Much Improved and Improved	Percentage	Unimproved	Percentage
184	103	55	49	26	32	19

to treatment than the catatonic and paranoid forms. Lewis[23] gives a detailed account of the prognostic factors in schizophrenia. He rightly concludes that those cases that show the best prognostic factors show the highest recovery rate. According to our results it would appear that favorable prognostic factors are spread evenly among the various categories of schizophrenia. With a large group of schizophrenics, the results should be about the same in each subdivision, according to the duration of the illness.

Manic-Depressive, Depressed

Table 3a gives the results in 658 manic-depressive depressed patients. The recovery rate is 57 per cent. This rate is practically the same as that of involutional melancholia. Our results are in general agreement with the optimistic results of other workers. Malzberg has tabulated the results in this group according to the duration of the illness. He found that the recovery rate is higher in those patients whose illness was of a short duration.

Manic-Depressive, Manic

Table 3b shows the results in 184 manic-depressive, manic patients in which the recovery rate of 55 per cent contrasts very favorably with that of the depressed group. Myerson[22] is of the opinion that manic patients should not be treated except when they are extremely difficult to manage. In view of the results we have found, his recommendations are very difficult to accept unequivocally. We have had several manic patients who, following a course of treatment, relapsed within one or two weeks. These patients were given a second or third course, and finally no longer relapsed. It might be advisable to give manic patients a minimum number (10–15) of convulsions even though they may recover with 4 or 5 treatments. This may prevent relapse.

TABLE 4.—ELECTROFIT: RESULTS IN INVOLUTIONAL MELANCHOLIA

Total	Recovered	Percentage	Much Improved and Improved	Percentage	Unimproved	Percentage
322	202	63	79	25	41	12

In 1941 7,523 cases with manic-depressive psychosis were treated (nonshock) in the New York civil state hospitals;[24] of these 10.9 per cent recovered. This recovery rate is much inferior to that of electrofit-treated patients.

Involutional Melancholia

Table 4 gives the results in 322 cases of involutional melancholia treated with the electrofit. The 63 per cent recovery rate is in agreement with that found by most authors but contrasts rather sharply with Malzberg's recovery rate of 23 per cent in 85 cases.[24] The discrepancy is probably due to the fact that he unfortunately included the paranoid type of involutional psychosis with melancholia. The paranoid involutional reaction is essentially schizophrenic, and does not respond as well as the melancholic type to the electrofit. In 1941 there were 4,076 patients with involutional disorders in the New York state hospitals. Only 5.9 per cent of these recovered during the year without shock therapy.[24]

Psychoneuroses

Apparently no one has had extensive experience in the treatment of psychoneuroses with electrofit. Most of the workers report only a few cases.[27,28] While a priori it would appear that hysteria would respond best to electrofit, this is not the case. On the contrary, the results with hysteria have been practically the worst for the entire group of psychoneuroses. Table 5 gives the results in 282 cases. The psychoneuroses respond to electrofit as follows from best to worst: anxiety neurosis, reactive depression, mixed psychoneurosis, com-

TABLE 5.—ELECTROFIT: RESULTS IN THE PSYCHONEUROSES

	Total	Recovered	Percentage	Much Improved and Improved	Percentage	Unimproved	Percentage
Compulsive-obsessive state	25	6	24	11	44	8	32
Reactive depression	52	22	42	17	33	13	25
Anxiety neurosis	14	9	66	3	21	2	13
Hysteria	28	0	0	19	68	9	32
Neurasthenia	7	0	0	3	43	4	57
Mixed	156	47	20	61	39	48	
Totals	282	84	30	114	40	84	30

pulsive-obsessive state, hysteria, and neurasthenia. The group as a whole shows a 30 per cent recovery rate and a 70 per cent improvement rate. These results are much better than those achieved by all former methods. Statistically the results in the psychoneuroses are the most difficult to evaluate because of none too rigid criteria for diagnosis and the personal diagnostic leanings of the various authors. What one author may label reactive depression may be called hypochondriasis, neurasthenia, or mixed psychoneurosis by another. Until the profession suggests a better, more rigid standard of diagnosing these conditions, statistical evaluation will continue to be difficult.

Complications

Although the complications reported with electrofit are numerous, the entire complication rate was only 1.1 per cent in 7,207 cases, according to Kolb and Vogel[2] and is lower than that reported with metrazol. In 491 electrofit cases Malzberg reported an injury rate of 2.9 per cent.

Fractures of the Dorsal Spine.—One of the most serious complications is fracture of the thoracic spine. In a series of 1,750 cases we found 39 cases of fractures of the thoracic spine. This is an incidence of 2 per cent.

Following the report of Polatin[3] and his associates in which they reported an incidence of 43 per cent of vertebral fractures in patients treated with metrazol convulsion therapy, technics were introduced to prevent or reduce this high vertebral fracture rate. This led Hamsa and Bennett[5] to advocate the use of spinal anesthesia, which however, was not found suitable. Later Bennett[6] introduced curare. Rosen, Cameron, and Ziegler[9] tried beta erylthroidine hydrochloride. More recently Yaskin[10] has advocated the use of magnesium sulfate. We have been using sodium amytal intravenously for the same purpose.[11]

Although the curare group of drugs effectively prevents fractures, they nevertheless apparently cause respiratory and cardiac embarrassment (8 out of 18 cases in 1 series)[31,32] so that the method is not without danger. Fifty per cent of the 8 electrofit cases so far reported to have died had received curare prior to the electrofit.[2,30,32,34,35,36] This is an unusually high percentage considering that relatively few patients receive curare.

Vertebral fractures caused by either metrazol or the electrofit are rarely severe and no consequences have so far been found. Worthing and Kalinowsky[37] studied 8 of their most severe fractures produced several years ago by metrazol. These had multiple fractures. They were studied neurologically, radiologically, and orthopaedically All of the fractures had healed completely. There were no atrophic bony changes. The neurologic examination was entirely negative, and there were no orthopaedic complications.

When the fracture occurs in the middle of a course of treatment, the treatment may be continued by using one of the above mentioned procedures to soften the convulsion.

Other Fractures.—A number of fractures of the long bones, hip bones, clavicles, scapulas, and mandibles have been reported. The incidence of all surgical complications, including fracture of the spine, was found to be 2.9 per cent in 491 cases reported by Malzberg.[24] Surgical complications in metrazol therapy were present in 3.9 per cent of the cases. The methods that are now being used to soften the convulsion and avoid spinal fractures also serves to avoid fractures of the other bones. Although, in general, fractures of the limbs are less alarming than those of the spine, when they occur in elderly people, they are apt to be very disabling. Usually fractures of the limbs, shoulder and pelvic girdle bones are produced by strong, wild swinging of the extremities during a convulsion. If these movements are prevented by pressure on the upper and lower limbs, so that they are held in extension and adduction, practically all of these fractures can be avoided.

Early in the beginning of this method of treatment, a large number of dislocations of the jaw occurred. Although a dislocation of the jaw is very easily reduced, there is hardly any excuse for it to occur if the patients' jaw is properly handled during the fit. The electrofit convulsion differs from all other types of convulsions in that it is initiated by strong generalized flexion spasm, as soon as the current passes through the electrodes.[38] This spasm is due to direct stimulation of the motor neurons. It is more or less instantaneous and consists of: (1) closure of the eyes; (2) closure of the mouth; (3) flexion of the forearms on the arms; (4) flexion of the thighs on the pelvis and the legs on the thighs. Following this the tonic phase of the convulsion appears. The tonic phase may occur immediately after the flexion spasm or after an interval of one to ninety seconds, during which the patient is in a state of apnea. The tonic phase begins with wide opening of the mouth, often with an expiratory cry and by turning of the eyes and head to one or the other sides and finally by participation of the limbs. Dislocation of the jaw occurs if, in the beginning of the tonic phase, the jaw is allowed to open widely. It can be avoided by holding the jaw firmly at this time.

A number of other minor bone, muscle, and joint complications have been reported, such as: backache with no fracture, activation of arthritis,[33] activation of subdeltoid bursitis,[22] and painful muscles.

Pulmonary Complications

Activation of Tuberculosis.—This problem has been especially studied by Bulley and Greene in schizophrenic cases treated with metrazol.[39] They reported an incidence of 8.3 per cent, which compared with an incidence of 3 per cent in the nontreated schizophrenia population. According to the authors, the cause of the activation of tuberculosis is unknown. It may be due to allergy, circulatory or toxic developments, or to rupture of the protective wall of the focus. The pulmonary lesion is usually an extensive exudative infiltration of pneumonic consolidation, often bilateral, which has a marked tendency to progress unfavorably. So far we have only been able to find reports of 6 cases of activated tuberculosis following electrofit therapy.[25,40,53] In view of the seriousness of this complication it would seem that a history of the presence of tuberculosis should be an absolute contraindication to treatment. In order to avoid this complication it might be prudent to do x-rays of the chest prior to the institution of treatment. However, occasions arise when one is forced to decide whether or not to treat tuberculous patients. We had one such case. The patient had had a therapeutic pneumothorax. Mentally she was very depressed and agitated, and her physical condition was becoming worse daily. We felt that if we did not treat her she would probably die. It was decided under these circumstances that the risk involved in allowing her mental condition to go on untreated was greater than the risk involved in treating her. She received a series of 8 electrofits and made a full recovery. Her tuberculosis was not activated. Activation of tuberculosis in patients treated with electrofit is apparently less frequent than in patients treated with metrazol. Further study of this complication of electrofit therapy is needed to clarify this problem.

Apnea.—Next in importance to activation of pulmonary tuberculosis is apnea.[44,41] The cause of this is not clearly understood. It occurs more frequently when curare has been administered prior to the electrofit.[31,32] A patient may have only one attack. Once the patient is in apnea, the best form of treatment seems to be artificial respiration. All patients go through an apneic period following the clonic phase. The apnea may last from a few seconds to ninety seconds. Patients who are in hyperextension during the treatment apparently breathe better than those who are not. After the clonic phase, they should be left in hyperextension until they begin to breathe freely. If the patient does not breathe within thirty seconds and becomes very cyanotic, the head should be moved to one or the other side, the jaw should be brought forward, and the limbs should be raised above the head and back to the side at the rate of 15 per minute. This usually suffices to initiate respiration. If the patient does not begin to breathe, artificial respiration is indicated.

A few cases of pneumonia,[42] lung abscess,[21] and pulmonary edema[34] have also been reported.

Deaths

The death rate in 7,207 cases treated with electrofit was found to be 0.06 by Kolb and Vogel.[2] This compares with a death rate of 0.1 for metrazol and 0.6 for insulin. In our review of the literature we have found 8 electrofit deaths in an estimated 11,000 cases. This is a rate of 0.8 per cent. The causes of death were: dilatation of the heart, myocardial damage,[44] ventricular fibrillation,[28] coronary occlusion,[33] pulmonary edema,[34] pneumonia,[45] and postconvulsive respiratory arrest.[33] In one of the cases, the autopsy failed to reveal the cause of death. In none of the cases was the cause of death cerebral. According to Ebaugh, Barnacle, and Newburger,[33] death in these patients is not caused by direct injury to the brain. Although they found changes in the brain which consisted mainly of small hemorrhages in the meninges and brain substance, and also some damage to the neurons, they felt that these changes were not sufficient to cause death. The deaths are not due to brain damage, but rather to involvement of other organs of the body, mainly the heart and lungs.

Convulsive Seizures Following Electrofit Therapy

Eight cases have been reported in which at some time following electrofit therapy the patient either became unconscious or had a convulsion.[12,14] Of these, 7 had convulsive attacks, and 1 had two periods of unconsciousness (petit mal?) following a treatment.[22] Three of the 8 cases had either an abnormal electroencephalogram[46] or a history of convulsions prior to commencement of electrofit therapy.[46,47] In only one of the cases did the convulsive seizures persist.[46] This problem was studied in metrazol-induced convulsions by Liebert.[48] He is of the opinion that spontaneous epilepsy occurs very rarely in nontreated schizophrenics. Following metrazol treatment, convulsive seizures occur with some frequency. He reported 8 such cases from the material at the Elgin State Hospital. All the convulsions occurred in patients with chronic schizophrenia (ill more than two years). The convulsions occurred from three to twenty-four months after the end of the treatment. No electroencephalograms had been taken, and there was no prehistory of epilepsy. It seems from our material that the incidence of convulsions is less following electrofit than metrazol.

Disturbances of the Cardiovascular System

A large number of disturbances of the cardiovascular system have been reported.[14,15,29,33,34,49,50] Most of these have been transitory. As already stated, cardiac disturbances have been the cause of most of the deaths. The following is the list of disturbances of the cardiovascular system that have been reported: (1) auricular fibrillation of three-hour duration; (2) flaring up of endocarditis; (3) inverted T-wave in leads 1 and 2; (4) idioventricular rhythm; (5) coronary occlusion and myocardial infarction; (6) sinus arrythmia; (7) auricular ventricular extrasystoles with vagus arrythmia—these changes disappeared at the end of one to two hours—(8) sinus bradycardia and sino-auricular heart block occurred in 35 out of 90 fits; (9) auricular ventricular nodal rhythm; and (10) shifting of the pacemaker.

These disturbances appear usually immediately after the treatment. Occasionally, however, cardiac disturbances may appear from ten to twenty minutes or more after the convulsion. In a case reported by Kline and Fetterman,[15] of a man aged 58, with rheumatic chronic valvular disease and moderate dilatation of the heart, there occurred, twenty minutes after the first convulsion, profuse sweating, paleness of the face, cold and clammy hands, and a serious drop in blood pressure. He recovered in about thirty minutes. This patient probably had cardiac failure. Cardiac arrest following both petit mal and grand mal reaction may lead to heart failure and is frequently associated from a mild rhythmic disturbance to ventricular fibrillation.

Psychiatric Manifestations

Among the psychiatric manifestations which have been reported are amnesia, memory defects, hypomania,[51] marked confusional state lasting ten days,[40] and organic type of sensorial and intellectual impairment which lasted for six months after the treatment.[12] Ziegler[44] reported one case in which a memory defect was present for one year after treatment. These findings are uncommon.[53] None of these usually lasts longer than one to two months following the end of the treatment.

Neurologic Manifestations

The neurologic complications following electrofit are few in number. Levy, Serota, and Grinker[12] found no neurologic objective signs of organic involvement of the central nervous system following electrofit. Trampler and Reisner reported a case of aphasia, one of brachial plexus neutritis, and another of acute Parkinsonism following electrofit. Silverstein[54] reported a case in which a Babinski sign lasted for twenty-four hours after the treatment.

Electroencephalographic Findings

Although neurologic signs following the electrofit are scanty, the electroencephalographic changes are frequent.[13] Levy, Serota, and Grinker[12] reported electroencephalographic changes in about half of 23 of their patients. The changes consisted of very moderately severe changes, such as: epileptoid disturbances characterized by 3 to 6 per second waves, spikes and wave formation, increased amplitude, etc., to less severe changes. The disturbances may appear after the second or third treatment or may not appear at all after many treatments. Only 45 per cent of the cases showed changes in the cerebral function (memory impairment). There was no relationship between the electroencephalographic changes and changes in the cerebral function. Mild electroencephalographic changes disappear in a few weeks. Some last up to six months. There was no relationship found between recovery or improvement and electroencephalographic changes.

Gastrointestinal System

The most common gastrointestinal disturbance was formerly biting the tongue. This can be avoided by the proper handling of the jaw during the convulsion. Ziegler has reported a case of bleeding gastric ulcer.[44]

Special Senses

Several cases of subconjunctival hemorrhage have been reported.[29] Ziegler[44] reported a case of activation of a glaucoma. We have two patients who had difficulty in hearing before the treatment and who now complained that treatment made their hearing worse.

Conclusions

1. Time has been too short for a final evaluation of electrofit therapy. The immediate results have been good. As a form of convulsive therapy it has practically fully displaced metrazol.
2. The electrofit is very effective in the treatment of involutional melancholia and manic-depressive psychosis.
3. It is also effective in the manic phase of manic-depressive psychosis.
4. Its efficacy is less pronounced in the schizophrenia psychoses. Here it seems to be less efficient than insulin. However, larger courses of electrofit may lead to a higher rate of recovery in schizophrenics.
5. It is promising in the treatment of psychoneuroses.

6. The technic of the electrofit is still in the evolutionary stage.

7. The fracture rate for the electrofit (1.1 to 2.9 per cent) is less than that for metrazol (3.9 per cent).

8. Methods to reduce the fracture rate are still being tried out. Curare seems to have some disadvantages. Magnesium sulfate and sodium amytal are promising.

9. The death rate is extremely low (0.06 per cent).

10. Electrofit therapy is a safe method of treatment and should be continued until more effective methods of treatment are discovered.

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Discussion

Dr. Eugene N. Boudreau, *Syracuse, New York:*—Dr. Ross's experience parallels other experience to date.

My own experience with this method of therapy in the psychoses has just passed the two-year point, as I started using it late in April, 1941. In that time I have had 77 patients under treatment. All of the administrations I have given myself. The results are here briefly epitomized in the tabulation below:

	Remission	Much Improved	Improved	Unimproved	Insufficient Treatment
Manic depressive—manic	6	1	..	..	..
Manic depressive—depression	10	1	..	..	2
Involutional melancholia	9	5	1	..	..
Involutional melancholia compulsions	..	..	1	..	..
Involutional melancholia—psychasthenia	1	2	1	..	..
Manic depressive—psychasthenia	1	2	1	..	..
Manic depressive (schizophrenia) depression	4	4	1	..	..
Schizophrenia—paranoid	..	1	..	1	1
Schizophrenia—simple	..	1	..	..	..
Schizophrenia—catatonic	3	..	..	..	..
Schizophrenia—hebephrenic	..	1	..	1	..
Schizophrenia—defective	..	..	1	..	1
Psychoneurosis	..	..	..	..	1
Psychoneurosis—compulsions	1	..	..	..	..
Psychoneurosis—anxiety	..	..	1	..	..
Paranoid condition (?)	..	1	..	..	..
Totals	34	18	6	2	5

Now under treatment—11. Total completed—65.

6. The technic of the electrofit is still in the evolutionary stage.

7. The fracture rate for the electrofit (1.1 to 2.9 per cent) is less than that for metrazol (3.9 per cent).

8. Methods to reduce the fracture rate are still being tried out. Curare seems to have some disadvantages. Magnesium sulfate and sodium amytal are promising.

9. The death rate is extremely low (0.06 per cent).

10. Electrofit therapy is a safe method of treatment and should be continued until more effective methods of treatment are discovered.

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Discussion

Dr. Eugene N. Boudreau, *Syracuse, New York*—Dr. Ross's experience parallels other experience to date.

My own experience with this method of therapy in the psychoses has just passed the two-year point, as I started using it late in April, 1941. In that time I have had 77 patients under treatment. All of the administrations I have given myself. The results are here briefly epitomized in the tabulation below:

	Remission	Much Improved	Improved	Unimproved	Insufficient Treatment
Manic depressive—manic	6	1	..	..	..
Manic depressive—depression	10	1	..	..	2
Involutional melancholia	9	5	1	..	..
Involutional melancholia compulsions	..	..	1	..	..
Involutional melancholia—psychasthenia	1	2	1	..	..
Manic depressive—psychasthenia	1	2	1	..	..
Manic depressive (schizophrenia) depression	4	4	1	..	..
Schizophrenia—paranoid	..	1	..	1	1
Schizophrenia—simple	..	1	..	..	..
Schizophrenia—catatonic	3	..	..	..	..
Schizophrenia—hebephrenic	..	1	..	1	..
Schizophrenia—defective	..	..	1	..	1
Psychoneurosis	..	..	..	..	1
Psychoneurosis—compulsions	1	..	..	..	..
Psychoneurosis—anxiety	..	..	1	..	..
Paranoid condition (?)	..	1	..	..	..
Totals	34	18	6	2	5

Now under treatment—11. Total completed—65.

I can say that I am altogether most favorably impressed by the results. It is impossible to express all of them in figures alone. The day-to-day experience with sufferers and their families has taken quite a complete turn. Yet I am sure I feel strongly that we must be on guard not to become too mechanistic in our attitude through using this medium of approach to psychiatry. Dr. Ross has done well in referring to the six tenets of Ebaugh, for some of them effectively state principles that are well sustained by later experience. Undoubtedly *length* of the psychosis, *affective factors*, and *prepsychotic personality* are prime elements forecasting favorable results. I believe the other three factors—namely, exogenous precipitating factors, etc.—do not have such absolute values. We all must agree also that in the full treatment of our patients we must treat the total situation. However, we cannot ignore incontrovertible facts. It is incontrovertible that certain electric currents applied to an individual's brain often produce complete, and probably permanent, reversal of mental and mood patterns. This result has no connection with that individual's environmental setting at home. These changes are essentially physiologic.

That environmental conditions must be repaired insofar as possible is amply indicated by my experiences. I am thinking, for instance, of my 74-year-old patient whose psychosis was apparently precipitated by the sudden accidental death of a devoted and worthy husband. She made several remissions but apparently could not face her life alone, and as soon as mental clarity appeared, she showed immediate depressive response and return to the unreality of an elation given her by the psychosis.

I think Dr. Ross's experience with young mothers in the postpuerperal period is unique, for I have had no experience and I can recall no such experience recited in the literature to date.

It is of course conceded that in the manic-depressive group, recovery from the attack is the rule so that all that any treatment can immediately contribute is to the lessening of the severity and length of the attack. We cannot expect more from electrical shock so far, as all experience thus far indicates. Can we yet say that time has truly revealed the ultimate promise of changes that it may have upon the fundamental personality or constitutional qualities. Dr. Cheney and Dr. Kennedy apparently believe that little can be expected in the direction of personality change.

We should be grateful to Drs. Impastato and Almansi for bringing to us such a complete review of such a large series of cases of mentally sick treated by electric shock. Their discussion of results is impressive and gives us hope that an epochal advance in this field of medicine has been accomplished. I here personally subscribe to this belief on the basis of experience before mentioned. Comparing my experience with psychiatric patients up until two years ago and my experience with patients now, I feel greatly heartened.

The results, for instance, now achieved with that great group of involutional melancholias who are stricken at the height of their usefulness and who, before electroshock, were doomed to illness for months, years, or, in nearly 60 per cent of cases, to invalidism for the remainder of their lives, are now returned to full usefulness and health in three or four weeks in a vast majority of cases. (Drs. Impastato and Almansi say 63 per cent.) Those improved add another 25 per cent, meaning that 88 per cent are saved from disheartening hospital residence and are returned to their families, which means immeasurable saving in human distress and social benefits to the community.

So far as that group designated as dementia praecox or schizophrenia is concerned, I feel sure we must think in different terms as to groupings and recognize that here especially fundamental traits of personality are the criteria upon which improvement or recovery can be forecast and sought. And yet I feel that even those patients whose outlook is not so promising should be given the chance and not denied it. The most favorable group of cases in this category are those that have associated or mixed reactions, affective qualities of depression, anxiety, and excitement. I think they might be called manic depressive schizoids, or schizoid manic depressive, depending upon which traits predominate. On the basis of these figures and results which are borne out by personal experience, I believe that when the method has been adopted as widely as is justified—kept, however, in the hands of trained psychiatrists—that the problem of increasing hospitalization and cost to the states will be removed.

I am also much interested in Drs. Impastato and Almansi's experience with the psychoneurotic groups. Here the possibilities are more promising than has been previously thought.

In conclusion, however, I wish to say—and this I wish to emphasize—that our results from this method will be in direct proportion to the skill and completeness of its use and should be used to the fullest extent indicated. However, we must not let ourselves become too mechanistic or think of the method as a "cure all" and let ourselves deteriorate in our psychiatric acuity and skill thereby, for diagnostic skill and psychotherapeutic abilities must be cultivated for that need in handling the total situation that sound psychiatry imposes.

A WOMAN DRIVER

It was dusk as she stopped at the roadside filling station. "I want a quart of red oil," she said to the service man. The man gasped and hesitated.

"Give me a quart of red oil," she repeated.

"A q-quart of r-r-red oil?" he stammered.

"Certainly," she said, "my tail light has gone out!"

CUTANEOUS MONILIASIS

PAUL E. BECHET, M.D., New York City

BECAUSE of the diversity of its clinical manifestations, cutaneous moniliasis is of great dermatologic interest. Its history is equally interesting. The causative organism was first described by Langenbeck[1] in 1839 and correctly named by Charles Robin in 1843, yet its many clinical manifestations remained unrecognized until about twenty-five years ago. Prior to that time, in 1907, Jacobi[2] first described thrush infections after the continuous bath. Muijs,[3] in 1916, was the first to recognize the intertriginous superficial yeast infections of the skin. Kaufmann-Wolf in presenting two cases of erosio interdigitalis from a group of thirty before the Berlin Dermatological Society in June, 1914, in which she demonstrated the Oidium albicans, has priority in the discovery of the fungous nature of this common type of mycotic infection. Monilial onychomycosis and paronychia were first demonstrated by Dubendorfer[4] in 1904. In this country Schamberg,[5] Engman,[6] Mitchell,[7] Hopkins,[8] Zeisler,[9] Shelmire,[10] and many other observers have greatly clarified the confusion which had existed for so long in diagnosis.

In discussion of the more important clinical manifestations of this cutaneous disease, it might be best to consider them under separate headings.

Clinical Manifestations

Erosio Interdigitalis.—This is the common form so familiar to all of us. The bright red, moist patch with a bluish to violaceous white border in the third interdigital space presents a characteristic picture. It is overwhelmingly frequent in women. Of the 30 original patients presented by Kaufmann-Wolf, 29 were women. Jewish women are particularly susceptible, and it is not unusual to observe occasionally a concomitant monilial paronychia with, at times, involvement of the nails. In the opinion of the author, the term blastomycetica should be eliminated, thereby preventing any possibility of confusing blastomycosis with it, a possibility which might occur in a nondermatologic mind.

Erosio interdigitalis and perlèche belong to the group of intertriginous yeast infections, and even that rarity, intertrigo between the toes, reported by Weidman[11] and by Robinson and Moss,[12] also belongs to this group. It is the author's belief that the predominance of erosio in the female sex is due to the constant presence of moisture from excessive use of soap and water in housework and that its prevalence in Jewish women might possibly be accounted for in the proclivity of that race to either active or potential diabetes, which disease we know is not uncommon in persons afflicted with more or less extensive monilial intertrigos. In six cases of monilial intertrigo at the Vanderbilt Clinic from which Monilia albicans was isolated, Hopkins[8] found that five were diabetic, and the sixth had had hyperglycemia but no glycosuria.

Intertriginous Moniliasis.—This subject has been partially covered under the previous heading. It is the form which causes most distress, and it is in the obese that it blooms excessively. The favorite sites are beneath pendulous breasts and reduplicating folds of fat on the lower abdomen. In patients of normal weight, the groins, anal region, and intergluteal folds are the more favored locations. In the experience of the author, the last is the most common single location, and almost invariably there is anal pruritus; consequently a routine examination of the stools, the anal region, and gluteal fold for Monilia is of great importance in all cases of pruritus ani in which there might be the least suspicion of monilial infection.

The symptoms of monilial intertrigo are fairly constant and consist of bright red, inflammatory areas with macerated epidermis at their periphery, with occasionally small flaccid vesicopustules with a bright red areola beyond the zone of the patches. While the patches are exudative they do not "weep" nearly so much as they do in the nonmonilial intertrigos. However, the differential diagnosis is frequently a clinical impossibility without the aid of a microscope and culture media.

Generalized Cutaneous Moniliasis.—This variation is extremely rare and fortunately so, for it is invariably a dermatologic manifestation of an extensive monilial invasion of the buccal mucosa, gastrointestinal tract, or internal organs, ending fatally in a few instances. The first fatality in America was reported by Rockwood and Greenwood[13] in a man aged 51 with an extensive thrush infection of the mouth and pharynx from which area, as well as in the feces, M. albicans was found in abundance, as it was also in the affected cutaneous areas. The eruption was most extensive on the trunk and consisted of large, sharply circumscribed geographic-like areas, upon which subcutaneous abscesses developed continuously. From the pus of these abscesses Monil-

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iae were repeatedly demonstrated. On autopsy, except for the skin, buccal mucosa, pharynx, and esophagus, no Moniliae were found in the internal organs. The pathologist's summary was that death was due to the absorption of toxins from the multiple abscesses which were secondary to a generalized monilial infection.

Daubolt[14] reported cutaneous abscess-forming infiltrations on the face, arms, and upper part of the trunk in a patient with hyperglycemia, 187 mg. per 100 cc. In the pus and sections Moniliae were demonstrated. The case rapidly progressed to a fatal termination.

Pels, Dresel, and Salinger[15] and Downing and Hazard[16] separately report a different variety of generalized cutaneous moniliasis—the hyperkeratotic, dry, crusted type, associated with an inveterate oral thrush of several years' duration. There was a fatal termination in both cases, which, however, could not be traced to the monilial infection.

Perlèche.—Perlèche was first described by Lemaistre[17] in 1886. It is derived from the word *pourlèche*, which in the patois of Limoges, France, means "to lick." The real causative factor escaped discovery for thirty-six years, and during that time the Streptococcus was unanimously considered the causative factor. In 1929 Finnerud[18] discovered and definitely demonstrated that the real causative factor in perlèche was a yeast fungus. His observations were based on the study of 100 children in an institutional epidemic of perlèche. His demonstration was complete; yeast fungi were found in the large majority of cases and were cultivated. Children free from perlèche were inoculated with these cultures and subsequently developed the disease. Scrapings and cultures from these children showed the same fungi which occurred in the cultures used to produce the disease. Since 1922 Finnerud's work has been corroborated by a number of observers, among whom may be mentioned Robinson and Moss,[12] who reported 22 cases of perlèche, in the large majority of which M. albicans was demonstrated. Another interesting feature was the fact that of the 22 cases, only 4 had perlèche alone. Eighteen also had either glossitis, erosio interdigitalis, or paronychia.

Monilial Onychia and Paronychia.—This condition is frequently associated with perlèche, erosio interdigitalis, or monilial intertrigo, but it does occasionally occur alone. Monilial paronychia usually begins on one finger and, in the course of months or years, spreads to three or four fingers and occasionally to all ten. The symptoms are fairly characteristic. It presents a dull red, bolster-like indurated swelling, more marked in the region of the lanula. There is very little pain on pressure, and only occasionally can a thin seropus be expressed. If the nails are involved, they present transverse ridges of a brownish color. At their distal ends they may be raised and keratotic. Their edges may be eroded and at times the entire nail may be greatly thickened.

Moniliids.—In 1929 Ravaut[19] described cases of intertrigo from which yeast fungi were isolated. These patients also presented dry, slightly scaly, erythematous lesions well beyond the areas of intertrigo, from which no fungi could be cultivated. By intracutaneous injections with extracts from cultures obtained from the intertrigo, Ravaut was able to reproduce new lesions identical in appearance with the scattered erythematoscaly lesions, in which no fungi could be found.

Hopkins[20] presented a boy 8 years old at the Section of Dermatology and Syphilology of the New York Academy of Medicine on March 4, 1930, with thrush of the mouth, intertrigo of the fingers, toes, buttocks, and commissures of the mouth. The nails were characteristic of monilia. There was also an alopecia strikingly similar to that reported by MacLeod and Dowling[21] in cases of generalized monilial infection. Cultures from the mouth and gastrointestinal tract showed large numbers of M. albicans, but there were repeated failures to demonstrate the organism in most of the other lesions. Identical cutaneous lesions could be reproduced by the injection of sterile extracts of M. albicans. The moniliids present a greatly varied clinical appearance. They may be vesicular, pustular, erythematous, intertriginous, and even slightly scaly. A great help in diagnosis is to find monilial organisms in characteristic foci of infection, and not to find them in the scattered lesions. The intradermic injection of sterile extracts of M. albicans with the subsequent production of new lesions similar in appearance to the suspected moniliids is greatly corroborative. Hopkins[8] believes that gastrointestinal monilial infection is a factor in the production of moniliids on the skin.

Treatment

It is a known fact that monilial infections of the skin are extremely common. Lewis and Hopper[22] have proved this by obtaining cultures from the skin, tongue, and feces of 100 dispensary patients with suspicious lesions. M. albicans was cultured from the skin in 27, from the tongue in 39, and in the feces in 27.

Unfortunately, improvement in the therapy of moniliasis has not kept up with the recent dissipation of much of the fog which has for so many years shrouded the diagnosis of its many faceted variations.

Let us consider the more recent therapeutic measures first, beginning with a controversial

one—namely, immunologic therapy. This consists of the intracutaneous injection of trichophytin or oidiomycin in increasing doses, beginning with dilutions of 1:1,000 and increasing slowly to 1:50, depending upon the tolerance of the patient. Acute exacerbations of the monilial infection or new outbreaks are a sign of overdosage, and the vaccine should be stopped until the cessation of the exacerbations. Lewis and Hopper[23] used oidiomycin in a series of 48 patients. Not a single cure was noted. Sutton and Sutton[24] state that it is not a satisfactory therapeutic measure and is greatly inferior to local treatment. Sulzberger and Wolf[25] state that immunologic treatment is sometimes followed by improvement or even cure when all other attempts have failed; yet in another sentence they state that it is of limited practical value. While there have been some favorable reports, they are, nevertheless, specially noted for their paucity. Inhalations with ethyl iodide, according to the method of Schwartz, and the internal administration of the iodides have been used, but except in a few instances results have been indifferent.

Avitaminosis as a contributing factor to moniliasis is of interest in view of the original observations of Sebrell and Butler,[26] who noticed perlèche-like lesions in 10 of 18 women who were put on a pellagra-producing diet. Of the 10 women with perlèche, 4 were promptly cured with riboflavin. In patients with active foci of infection in the gastrointestinal tract, it would be well to eliminate the carbohydrates, substituting dextrose for cane sugar and administering large doses of calcium and magnesium carbonate, according to the plan of Hopkins.[8] At the same time, vitamin B-complex and sulfur should be given.

In a discussion of the treatment of moniliasis, one must keep constantly in mind the great difficulty of achieving a permanent cure. In the experience of the author, early rapid progress is common with almost any kind of good therapy, but later on there are remissions, exacerbations or lack of progress, despite the most intelligent therapeutic efforts. This holds especially true of the monilial intertrigos.

In the author's opinion, this may be due to the fact that after a certain time the fungi become habituated to the particular parasiticide that is used, and accelerated improvement when a change in local treatment is made has been noted. Another reason for lack of progress may well be ascribed to the fact that when a patient suffers from an acute internal condition, he is put to bed and kept under constant care all day, while the average dermatologic patient is content to spend five minutes and even less twice a day in the care of his dermatosis.

The most favored local remedies in intertriginous moniliasis are gentian violet in a 1 or 2 per cent aqueous solution; Gram's solution of iodine; silver nitrate, 1 to 2 per cent; ammoniated mercury, 3 to 10 per cent; half-strength tincture of iodine; chrysarobin, 5 per cent; and in acute "weepy" intertrigos, wet dressings of potassium permanganate, 1:2,000, or bichloride of mercury, 1:5,000. These remedies are also used in the other varieties of cutaneous moniliasis.

In the experience of the author, monilial onychia and paronychia respond best to the roentgen rays in doses of 75 roentgens once weekly without filtration. It is not a specific, for it fails at times to bring about a permanent cure. I have, in some instances, noted a recurrence of monilial onychia within a year of apparent cure. Perianal moniliasis is particularly obstinate. It frequently happens that all the therapeutic measures that have been mentioned fail completely to bring about a cure. It might then be proper to keep in mind the three cases of Lester P. Fowle and his coworkers;[27] all three were cured with injections of monilia extracts after resisting x-ray and local treatment for several years. Gentian violet in suppository form, as recommended by Lewis and Hopper,[23] in dosage of 0.13 Gm. to each suppository, may also be used.

Another remedy which has given the author excellent results in intertriginous moniliasis is 40 per cent sulfur ointment. However, it must be made in precisely the right way; otherwise the salve is so stiff that it cannot be used effectually. The author recommends the thorough mixing of 4 drachms of precipitated sulfur with 3 drachms of olive oil. When the mass is smooth, 1 drachm of petrolatum album is added. This results in a smooth salve easily applied. No dermatitis has ever been noted even in acute "weeping" intertrigos. It must be well understood, however, that while this method of treatment has at times resulted in phenomenal improvement, it has not brought about any permanent cures.

Summary

1. It is the author's hope that he has sufficiently stressed the fact that chronic monilial infection of the skin is a dermatosis which deserves the most serious consideration and is one of the most difficult to cure permanently.

2. The dangers of monilial infection of the internal organs, while well known to dermatologists, have not been sufficiently stressed by them for the benefit of the general practitioner.

3. It is to be hoped that on the return of our younger dermatologic confreres from military service, some of them will undertake research work devoted to further study of the yeast fungi

themselves, and through long experimentation, both in vitro and in vivo, discover a specific in the treatment of a group of dermatoses, which, in my opinion, is the most important in medical mycology.

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Discussion

Dr. Royal M. Montgomery, *New York City*—Dr. Bechet should be congratulated on his historical and clinical presentation of moniliasis. To complete the historical picture, I mention that the International Congress of Microbiology, 1939, changed the name of M. albicans to Candida albicans. Personally, I prefer the old terminology. I hate to think of calling the disease "candidiasis."

Two factors should be stressed as contributory causes in this disease: first, the presence of diabetes or hyperglycemia and, second, hypovitaminosis. Both these were mentioned by Dr. Bechet. All patients, especially those who are obese, should have a urinalysis or blood sugar test. Others, who have multiple sites of infection, are often undernourished and may have vitamin deficiencies, especially vitamin B-complex, C, and D.

These two factors, I believe, are contributory causes in many of the cases of moniliasis.

Although the paper is entitled "Cutaneous Moniliasis," other sites of infection should be mentioned to enlarge upon the clinical data of this disease. These include the vagina, cervix, lungs, buccal mucosa, and tongue. Moniliasis of these locations, with the exception of the buccal mucosa, are as difficult to cure as that of most of the cutaneous sites.

At the New York Skin and Cancer Unit over an eight-year period, from 1935 to 1942, inclusive, 1,773 positive cultures of M. albicans were made. It is interesting to note that the fingernail, as one would expect, had the highest incidence of positive cultures—31.6 per cent. It was also interesting to note the high percentages on the tongue (19.4 per cent); on the groin (15.3 per cent); and on the feet (10.9 per cent). Other intertriginous areas, such as the hands, breasts, axillae, anus, ears, and so forth, made up the remaining 23.8 per cent. This indicates that the tongue, groins, and feet are more frequently affected than one would suspect.

Finnerud stated that perlèche is a highly contagious disease. This might be true in undernourished patients, but it is not true in normal human beings. Dr. Cornelius Rhoads, who is a healthy-looking man, claims to have ingested much water contaminated with M. albicans without subsequent bad effects. I certainly do not believe that moniliasis is a very infectious disease in the normal person.

The treatment of moniliasis should be not only local, with the medications mentioned by Dr. Bechet, but should also include general treatment, such as vitamin therapy. If the gastrointestinal tract is involved or if pruritus ani is present, treatment should include alkaline salts and gentian violet by mouth. Locally, silver nitrate is one of the most effective remedies. In all, the treatment is not too satisfactory, as Dr. Bechet mentions.

I am sure that his hopes will come true and that more research will be devoted to this subject. Thus shall we be able to obtain a permanent and quicker cure.

BIBLIOGRAPHY ON PARALYSIS IS PLANNED

A complete bibliography of all knowledge on infantile paralysis ever published is being compiled by the National Foundation for Infantile Paralysis, Basil O'Connor, president of the foundation, has announced.

The bibliography, which, it is expected, will be ready for publication in book form early in 1944, will contain a record of all scientific material on poliomyelitis published to the end of 1943. Subsequently the data will be kept up to date by publication of annual supplements.

The compilation is being carried out for the foundation, Mr. O'Connor said, with the aid of the library of the American Medical Association and the John Crerar Library, both in Chicago, under direction of Dr. Morris Fishbein, editor of the *J.A.M.A.*, and Dr. Ludwig Kaktoen, editor of *The Archives of Pathology.*

MENINGOCOCCUS INFECTION

A Review

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Incidence

The increased incidence of meningococcus meningitis during war periods has been repeatedly observed. Although the reasons for this association are not entirely understood, it is felt that the mobilization of fresh troops, the migration of populations, and the factors of increased crowding, poor nutrition, and overexertion play some part in the phenomenon.

The present war is no exception. We had not only the history of previous wars but also the recent experience of Great Britain in the current war to warn us of an impending pandemic. The figures presented in Table 1 compare the cases and deaths in England and Wales with those in the United States Registration Area from 1936 to date.

TABLE 1.—REPORTED CASES AND DEATHS FROM MENINGOCOCCUS MENINGITIS FOR ENGLAND AND WALES, AND THE U.S. REGISTRATION AREA, 1936–1943

Year	Cases		Deaths	
	England & Wales[1]	United States[2]	England & Wales[1]	United States[2]
1936	994	7,320	635	3,020
1937	1,140	5,484	698	2,208
1938	1,288	2,919	652	1,024
1939	1,500	1,993	514	863
1940	12,771	1,665	2,584	694
1941	11,152	2,039	†	713
1942	6,190	3,774	†	†
1943	1,952*	11,766**	†	†

* Through May 22.
** Through June 26.
† Not available.

England has had no incidence of comparable magnitude since reporting of the disease was initiated in 1912. The year 1915 was the most outstanding, with 3,712 reported cases, 2,203 of which were fatal. For comparison with the 1,952 cases reported in England and Wales in the first five months of 1943, the figures for the comparable period in 1941 and 1942 were 6,988 and 3,852 cases, respectively.[1]

The experience in the United States[2] differs somewhat in that an extensive epidemic occurred in 1929–1930, with a further flare-up in 1935–1937. There were reported for the United States Registration Area 11,766 cases for the first twenty-five weeks of this year as compared with a five-year median of 1,175 cases, and compared with 6,553 cases for the same period in 1929, the latter being the largest number reported during the comparable period in any year since meningococcus meningitis became generally reportable (during the past sixteen years).

As to New York State, an unusual increase in incidence was first observed in New York City in the latter part of 1941 and early part of 1942. After the usual reduction in cases during the summer months, the increase in New York City continued in the fall and winter of 1942, with a particularly rapid rise last spring, when 256 cases were reported in May alone, as shown in Table 2.

TABLE 2.—REPORTED CASES OF MENINGOCOCCUS MENINGITIS IN NEW YORK STATE

Month	New York City		Upstate New York	
	1942	Average, 1937–1941	1942	Average, 1937–1941
January	15	14	12	11
February	22	12	8	14
March	54	12	15	13
April	57	11	15	13
May	53	11	12	14
June	48	10	21	9
July	30	8	15	11
August	22	7	15	8
September	19	7	9	8
October	27	6	22	6
November	26	9	24	7
December	45	8	15	9
Total, 1942	418	115	183	123
	1943	Average, 1938–1942	1943	Average, 1938–1942
January	74	10	50	11
February	121	11	45	10
March	190	17	85	12
April	195	17	96	13
May	256	18	114	13
June	176	17	91	11
Total, Jan.–June	1,012	90	481	70

A rise above the five-year average was first noted in upstate New York in June, 1942, and has been particularly marked since the first of this year. This year, up to the first of July, there were reported 481 cases from upstate New York. During the corresponding first six months of 1942 only 83 cases were reported, and the average for these months in the five years from 1938 to 1942 was only 70 cases. As the year 1943 has progressed, the number of reported cases has increased month by month, with May (114 cases) surpassing in incidence all previous months. In June a slight drop in incidence occurred. The total number of cases reported to date during 1943 for upstate New York is more than twice as great as the total number reported in the year 1929, in which the largest number of cases (212) was reported since 1914, when reporting of men-

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TABLE 3.—PERCENTAGE DISTRIBUTION BY AGE AND SEX OF CASES OF MENINGOCOCCUS MENINGITIS REPORTED IN NEW YORK STATE (EXCLUSIVE OF NEW YORK CITY), 1941–1943

	Male			Female		
Age Group	1941	1942	1943*	1941	1942	1943*
Under 15 years	56.7	40.2	32.4	57.1	50.8	49.3
Over 15 years	43.3	59.8	67.6	42.9	49.2	50.7

* January through May.

ingococcus meningitis was started. The largest number of deaths attributed to cerebrospinal meningitis occurred in 1905, when 2,569 such deaths were recorded, 2,025 from New York City and 544 from the rest of the State.

There has been a geographical shift in the occurrence of civilian cases in the State. Among the large cities, Syracuse led the rise and, on a morbidity rate basis, has borne the brunt of the increase in 1943. Buffalo had a marked increase, beginning in March of this year, and Rochester had a definite rise in May. Utica is still but slightly affected. Albany has had a fair number of cases, as have the communities in the vicinity of New York City. Rural areas were little attacked until May, when a spattering of cases seemed to occur throughout most parts of the State.

The interesting recent change in the age distribution of cases occurring in upstate New York, illustrating probably the influence that military mobilization has played in the present epidemic, is presented in Table 3.

Although clinical meningococcus meningitis, even when present in epidemic proportions, appears only in a small portion of the population, the commonly observed high case fatality rate and the suddenness and mystery of its appearance have served to impress the public with the importance of the disease. It is said that in military circles the demoralizing effect of an outbreak of meningitis on healthy soldiers is more of a hindrance to the functioning of the military forces than are the clinical cases that develop.

With reference to case fatality rates, it is interesting to review our experience in upstate New York. Even though these rates are subject to many sources of error, they do give some indication of the probable trend in recent years. For the past ten years, 1933–1942 inclusive, these rates for each year, respectively, have been 44.1, 34.8, 37.6, 36.1, 27.7, 36.9, 40.0, 40.6, 24.6, and 18.5 per cent. Thus far in 1943 the case fatality rate has been 18.8 per cent. To what extent we owe the recent drop to sulfonamide therapy is difficult to say, but it seems likely that this has been a most important factor.

Control

With respect to the control of this disease, the science of preventive medicine, unfortunately, has very little to offer at the present time. Experience has shown that a case of meningococcus meningitis can rarely be traced to contact with another case and numerous carrier surveys have demonstrated the high ratio of carriers to cases in any given locality. It has been assumed, therefore, that the asymptomatic carrier plays an important role in the spread of the disease; however, this is a subject of some debate, since the majority of clinical cases of meningococcus meningitis harbor the Group I organism, while it is common for carriers to harbor Group II organisms, especially when not intimately associated with cases. Furthermore, studies of given epidemics occasionally have shown the contact and noncontact carrier rates to be essentially the same. In fact, the common statement that carrier rates parallel case rates is open to some question.

Glover's[3] observation that when carrier rates exceed 20 per cent of the population, an outbreak of meningitis may be expected, has been found by other observers to be unreliable. Dudley and Brennan,[4] for instance, noted that at the Royal Naval Hospital, Chatham, England, during the period January, 1932–March, 1933, there were 11 cases of meningococcus meningitis, with a carrier rate of 13 per cent, while during the period March, 1933–May, 1934, a carrier rate of 54 per cent for agglutinable meningococci persisted without the appearance of cases of meningitis. Furthermore, at the Royal Naval Hospital at Portsmouth, England, during the same period the carrier rate among contacts of 6 patients with meningitis was only 5 per cent. A study[5] of the normal bacterial flora of the nasopharynx conducted in England during the nonepidemic period 1930–1937 showed noncontact carrier rates fluctuating between 6 and 26 per cent, nearly half the rates being 15 per cent or more. Rake,[6] in a careful study of laboratory workers, found 42 per cent of them infected with meningococci one or more times during the year of observation. Dingle and Finland,[7] from their recent extensive review of this disease, feel that the true significance of carriers will probably be determined only after further studies have been carried out, taking into account not only the type but the virulence of the carrier strains. For these reasons, plus the difficulties inherent in studying the meningococcus and the meager and questionable benefit derived therefrom, routine meningococcal carrier surveys for control purposes have been discouraged.

Although meningococcus meningitis may be justly regarded as a disease associated with institutional life, the original view that the increased incidence was due primarily to overcrowding has not been substantiated in the light

of present knowledge, even in regard to military establishments.[8,9] Glover's[3] nice demonstration of the correlation between the spacing of beds in barracks and the incidence of meningococcal infection is apparently not thought to be of much practical importance today. Experience since the last war has shown that bed spacing per se has little effect on carrier and case rates. Furthermore, in the analysis of the Detroit epidemic of 1929, Norton and Gordon[10] showed that the incidence of cases was not correlated to any extent with crowding. The carrier rates they found were essentially the same in households of one to four persons as in those with ten or more.

Early Diagnosis

The most valuable control measure available at present is the early recognition of cases and their treatment. Of considerable importance is the concept that meningococcal infection is only rarely accompanied with meningitis. Meningococci have been demonstrated by cultural methods in the blood of 25 to 80 per cent of patients with meningitis, depending on the adequacy of the cultural methods and the duration of the illness.[7] It seems apparent that, with the exception of nasopharyngeal infection, meningococcemia is the primary disease. In fact, in recent years an increasing number of such cases without meningitis are being recognized. This type of infection has just been made reportable in New York State and in the future should permit us to ascertain the frequency with which this condition is recognized.

An interesting comparison of the clinical features of meningococcemia and the premeningitic stage of meningococcus meningitis has been made by Dickson[11] and his coworkers in the Canadian army. In a group of cases without meningitis, onset was abrupt enough so that the date could be fixed. The illnesses were characterized by fatigue, malaise, chills and fever, aching pains of limbs and back, and remissions. Of particular significance was a triad of symptoms and signs of unusual nature which were present in nearly all of their patients: first, sharply localized muscular pain; second, joint pain, often migratory, frequently with redness and swelling of the joint; and third, the characteristic skin rash, appearing suddenly in crops, coinciding with the recurrence of fever. These spots were most common on the limbs and trunk. They measured from 5 to 35 mm. and had dark purplish centers, which were frequently palpable and tender. These disappeared in from two to four days, leaving slight staining from hemorrhage. There was usually leukocytosis, and the spinal fluid was normal in all instances.

The average meningitis patient, when admitted to the hospital, is so aware of the meningeal symptoms that he tends to forget the preceding history of his illness. These workers, in studying their cases carefully, found evidence of a premeningitic phase, the exact counterpart of the syndrome just described. Over a third of the patients had suffered from this illness for at least a week prior to the onset of meningitis, and a number of them had histories of illness for over a month, with frequent exacerbations. Only one of their meningococcemia patients subsequently developed meningitis. Of course, these patients were treated with sulfonamides, so one cannot say whether or not they would have developed meningitis had they not been treated. The present trend of thought is toward early recognition and early treatment of these cases before meningitis develops.

Dingle and Finland[7] discuss at some length the advisability of examining the spinal fluid in suspected cases of meningitis and in meningococcemia. They feel that the dangers of inducing meningitis by means of lumbar puncture are minimal and of little consequence since sulfonamide therapy is available. Early diagnosis, followed by prompt and adequate treatment, increases the patient's chance of recovery. Such diagnosis can often be made within a few minutes from a stained smear of the cerebrospinal fluid sediment.

The rather rare Waterhouse-Friedericksen syndrome, which occurs almost entirely in children under 10 years of age, with an abrupt onset and fatal termination, frequently within twenty-four hours, is interesting but presumably of theoretic importance to health officers since according to a recent review[12] only 96 cases have been reported in the literature. This syndrome is characterized by fever, cyanosis, convulsions, petechial hemorrhages, and coma. The most striking pathologic findings are the bilateral adrenal hemorrhage, and, frequently, the prominence of the thymolymphatic system. Although the meningococcus has been isolated from the blood stream in about 70 per cent of these cases, apparently the Streptococcus and other bacteria may produce the same clinical entity. There is reason to believe that such cases are far more common than the published reports would indicate. Undoubtedly, many cases are so diagnosed but not reported, and in other instances the diagnosis is not made. In the current epidemic in Chile, which has been unusually severe, 4 per cent of the cases in children have presented this syndrome.[13]

Treatment

The evaluation of the effectiveness of a therapeutic agent is not a simple matter, particularly

in meningococcus infection, where fatality rates for untreated cases vary within wide limits in different epidemics and in the endemic disease in different localities. Furthermore, such factors as age, duration of the disease, severity of the illness, and dosage of drug or serum must be analyzed and evaluated. However, despite these difficulties, it can be said that sulfonamide therapy has proved very worth while. A voluminous literature has accumulated on the subject, much of which is difficult to assess. It is the considered opinion of most workers in the field that the four drugs, sulfanilamide, sulfapyridine, sulfathiazole, and sulfadiazine, are all highly effective therapeutically against the meningococcus, although the experience with the latter two drugs is limited. At the present time choice of drug is based largely upon the relative importance of toxic reactions. For this reason sulfadiazine is probably considered the drug of choice, with sulfathiazole running it a close second, despite the theoretic objection that its relative concentration in the spinal fluid is less than it is with the other drugs. Dingle and Finland,[7] already cited, give an excellent detailed account of the present methods of therapy in meningococcal meningitis.

Of considerable interest is the place that specific antiserum should take in modern treatment of this disease. A number of investigators[14,15,16] hold a brief for the use of chemotherapy alone without serum therapy even as an adjuvant. In a very careful analysis of 3,575 cases that occurred during 1940 in England and Wales, Beeson and Westerman[15] of the American Red Cross, Harvard Field Hospital Unit, present evidence on this point. They call attention to the fact that the age specific fatality rate ranged from a low of 5.6 per cent in young adults to as high as 56.6 per cent in persons over 60 years; hence, the almost uniformly favorable reports of therapeutic series from military populations must be studied with this fact in mind. After adjusting for age, they found a fatality rate of 18.8 per cent in 965 patients receiving both serum and sulfonamide therapy, and a rate of 14.3 per cent for those treated with sulfonamide alone. In fact, this difference was present in nearly all age groups. The type of antiserum, its route of administration, and the dosage of drugs used were found not to have been factors in this difference. Furthermore, in 88 per cent of the patients receiving serum, therapy was started on the first hospital day; hence, it was not likely that serum administration had often been used as a last resource when drug therapy appeared to be without result. Analysis of the relative severity of cases in the two series showed some tendency for the more severe case to receive the combined therapy; however, this was hardly enough to account for the difference in fatality rates.

Jubb[16] in a similar analysis of 3,206 cases of meningococcus meningitis reported during the same period and treated in civilian hospitals, reaches essentially the same conclusions. He observed a fatality rate of 13.8 per cent in 849 cases treated with combined therapy and a rate of 9.2 per cent in 2,357 cases treated with the drug alone. There appeared to be no difference in severity of illness in the two groups. It is interesting to note that over 500 strains of Meningococcus from these cases were grouped as follows: 91 per cent in Group I and 9 per cent in Group II. These groups were distributed in exactly the same way in the two therapeutic series. Furthermore, the severity of illness in the Group I cases did not differ essentially from that in the Group II cases.

Other workers,[17,18,19] in series totaling about 500 cases treated alternately with serum alone, serum plus sulfonamide, and with sulfonamide alone, have shown slight advantage in favor of the combined therapy. There is, of course, experimental work substantiating the value of serum plus sulfonamide. Branham,[20] for instance, has shown in mice that sulfonamide plus serum gives results in therapy far better than those achieved with either agent alone.

In view of the difficulties and possible complications involved in administering serum, one certainly is justified in questioning the value of its routine use. In this connection it is interesting to note that the New York City Department of Health is discontinuing the distribution of antimeningococcic horse serum. Studies carried out by that Department are said to show that the use of intrathecal antimeningococcic horse serum is not indicated.[21] The consensus of most observers is expressed by Dingle and Finland,[7] who state: "It is our present opinion that patients who have received full doses of sulfanilamide or a derivative, as indicated by adequate levels in the blood and cerebrospinal fluid, and who fail to show definite objective and symtomatic improvement within twenty-four to forty-eight hours after the beginning of therapy should receive antiserum. . . . . The antiserum should be administered intravenously, with observation of the usual precautions necessary in serotherapy. . . . . Intrathecal administration should be avoided, at least until twenty-four to forty-eight hours have elapsed after intravenous therapy and the patient has failed to respond."

Prophylaxis

The use of sulfonamide drugs in the control of meningococcus carriers is of considerable current interest. Unfortunately, we do not have access

to the reports of studies in progress by the medical personnel of the United States armed forces. However, we do have the rather conflicting evidence of reports that have appeared in the literature. Marquezy, Brumpt, and Thomas[22] were the first to our knowledge to use this method in field control. In a number of trials in Army camps, they first studied the carrier rate prior to the administration of a sulfonamide (1162 F.) to the entire camp. Carrier surveys were then made after completion of a three-day course, and a striking reduction of carriers was noted; however, surveys conducted nine days after the drug was discontinued showed carrier rates as high or higher than those shown by the preliminary surveys before administration of the drug.

Fairbrother[23] reported favorably on the use of sulfapyridine in a limited series of convalescent cases and carriers. Unfortunately his work is invalidated by the fact that the nasopharyngeal swabbing of carriers was done during therapy or immediately after its discontinuance, and apparently para-aminobenzoic acid was not used in the culture media; hence, the drug might still have been present in the nasopharyngeal secretions and have interfered with recovery of the meningococci. The same fundamental objection applies to the favorable report of Gray and Gear.[24]

In this country, Strong and Blumberg of the United States Army[25] found that sulfathiazole, 6 Gm. daily for five days, cleared up all of 35 carriers so treated. Their criterion of freedom from meningococci consisted in three negative cultures of nasopharyngeal swabbings taken at five-day intervals after discontinuance of therapy.

Recently, Mueller[26] has described a very favorable experience with the use of sulfadiazine prophylaxis in a community undergoing a sharp outbreak of Group I meningococcus meningitis and in which 60 to 70 per cent of a group of several hundred who were cultured were found to be carriers of this Group. In Mueller's study sample of approximately 400 individuals, sulfadiazine was fed to half of the persons on three successive days, 3 Gm. the first day and 2 Gm. each on the following days. The other half of the group served as controls. Three days after administration of the drug was stopped all were cultured. In the control group, type I carriers were found in 70 per cent while not a single treated individual harbored meningococci of any type. After an interval of three weeks cultures were obtained from 116 of those treated with sulfadiazine. Of this group, only 18, or 16 per cent, were carrying Group I meningococci. It is further interesting to note that 9 of these 18 carriers were among the group that were negative on the initial culturing before therapy. In other words, half of the persons who became carriers during the three-week period after sulfadiazine were among the group of 32 per cent who were originally negative. "This would appear to afford some support to the view that transient contact with this organism leads to a measure of resistance against it."

The only other evidence that we have uncovered on the subject of chemo-prophylaxis in meningococcus meningitis is the unsupported statement appearing in the official publication of the British War Office dated June 30, 1942,[8] which we quote as follows: "There is no specific remedy that is known at present that is effective as a prophylactic measure. There is no valid evidence to show that preventive inoculation or gargling has any prophylactic value. Sulfonamides are sometimes given as prophylactics, but it should be noted that these drugs may not be effective in the dosage advised, and may produce drug fastness or masking of symptoms. They cannot, therefore, be recommended." This statement is apparently based on concrete evidence, although we do not have access to these facts. It seems necessary, therefore, to consider the use of sulfonamides to eliminate the meningococcal carrier state as still in the experimental stage.

With reference again to the current epidemic in New York State, it can be predicted fairly confidently, based on past experience, that although there may be a marked reduction in incidence of meningococcus meningitis during the summer months, it nevertheless seems likely that the epidemic will continue its course next winter and possibly well into 1944.

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"DECK ANKLES"

Under the designation "deck ankles" has been described in the *Journal of the Royal Army Medical Corps* a condition observed on troop ships.

On about the tenth day of the voyage some of the men complain at sick parade of edema of the ankles for which there is no apparent cause. They represent about 1.5 per cent of the total strength on board. It was found that a similar condition had been noted on a previous trip. The swelling appeared insidiously and had no relation to injury. One or both ankles were affected. Some men complained of slight aching and stiffness of the ankles, with discomfort and a tired feeling in the feet, especially at the end of the day. In about half the cases the swelling extended on to the dorsum of the foot. It always began at a level just above the edge of the uppers of the gymnasium shoes which the men had worn since embarking. In some cases the swelling reached as far as 4 inches above the tips of the malleoli, filling the hollows on each side of the Achilles' tendon.

No discoloration was noticed at first, but an erythematous flush with fine ecchymoses soon appeared. Active movements were slightly restricted and without pain, passive movements free but slightly painful on full inversion or eversion of the foot. The tissues were mildly inflamed and the skin was somewhat hot. No evidence of heart or kidney disease was found, and dietary deficiency was scarcely possible. Rest in bed was thought the most suitable treatment but was impracticable.

Some were told to wear boots, and their average number of days on treatment was five; for those who continued to wear gymnasium shoes, twelve days. After the fourteenth day of the voyage the number of patients reporting declined and none reported at the end of the ensuing week. It is suggested that slight trauma, the result of walking on hard decks and repeated small twists of the ankle when ascending and descending hatchways, while wearing gymnasium shoes, produced the disability, that varicose veins, sun erythema, and lack of "seasoning" among the troops were aggravating factors, and that the wearing of boots, restoring the accustomed support to the ankles, constitutes a specific cure.—*J.A.M.A.*

PSORIASIS OF THE NAILS

A great deal has been written regarding the relationship of arthritis and psoriasis and there has been considerable controversy in the literature as to whether or not psoriatic arthritis is a definite clinical entity. Alibert, one hundred and twenty years ago, was the first to call attention to the occurrence of joint pains in psoriasis, and in 1860 Bazin differentiated rheumatism with psoriasis from that without associated skin lesions. At the turn of the century, Adrian reviewed the subject thoroughly and did much to establish it as a syndrome. Since then several contributions have appeared yearly, mainly by foreign authors. A comprehensive study of the literature discloses only a few reports from this country. One of them is by O'Leary, who saw 8 cases of arthritis in 1,400 patients with psoriasis at the Mayo Clinic. One of them was reported in detail by Hench. In 1938, Dawson and Tyson analyzed 1,000 cases of rheumatoid arthritis and found 26 cases of psoriasis—whereas, in the same number of osteoarthritics they found only 3. This led them to conclude that there must be a direct relationship between rheumatoid arthritis and psoriasis, while in the hypertrophic type the association is, very probably, purely a coincidence.

Twelve cases were considered to be "classical" in that they showed the clinical features and *x-ray* changes usually associated with rheumatoid arthritis, and two-thirds of these had involvement of the nails. In 75 per cent of all of their cases with psoriasis, the skin lesions preceded the development of the arthritis by a considerable period. —*Le Moyne Copeland Kelly, M.D., in Lancet*

THE LOUIS LIVINGSTON SEAMAN FUND

The New York Academy of Medicine announces the availability of The Louis Livingston Seaman Fund for the furtherance of research in bacteriology and sanitary science. One thousand dollars is available [illegible] 1943. This Fund has been [illegible] is of the will of the late Dr. [illegible] and is administered by a [illegible] ty under the following conditions and regulations:

1. The Committee will receive applications either from [illegible] or individuals up to November 1, 1943. Communications should be addressed to Dr. [illegible], Chairman of the Louis Livingston Seaman Fund, 1300 York Avenue, New York City.

2. The Fund will be expended only in grants in aid for investigation or scholarships for research in bacteriology or sanitary science. The expenditures may be made for: (*a*) securing of technical help; (*b*) aid in publishing original work; and (*c*) purchase of necessary books or apparatus.

LIGHT TRANSITION FORMS BETWEEN MENTAL HEALTH AND MENTAL DISEASE

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IT WOULD seem that this subject belongs in the Section on Nervous and Mental Diseases, where I spoke on a similar topic three years ago, but, according to my conception of the lighter forms of mental disorders, they are of even greater interest to the physician who never specializes in psychiatry. He meets them at every step, and whether he knows them or not, he is often the first to encounter them before they reach the psychiatrist.

As you know, a good many outspoken mental illnesses are caused by physical conditions or occur together with them. Almost any case of somatic disease shows some elements of mind disturbance. Does not sickness create weakness, helplessness, loss of self-confidence, or fear of complications and of death? And do not such general symptoms as pain and fever produce direct mental confusional episodes which affect the thinking capacity and adaptability?

In addition to that, the individuals with light mental problems rarely present themselves to the psychiatrist. They go with them, as with their headaches and backaches, with their indefinite digestive complaints, with their pains, real or fanciful, described as gnawing, drawing, nagging, pulling, pressing, stinging, to the physician who deals with the body. They are unwilling to believe or to concede that their sickness has ever come from the mind. And no matter what they suffer from the story is very often introduced, mixed, and concluded with the vague, sometimes meaningful, sometimes meaningless, universal layman's refrain—or is it a diagnosis?—"I am nervous!" The physician must unravel, as much as it is at all possible to do so, the mental thread from the entangled skein of physical complaints. It is, therefore, important, no matter what the physical disease, never to forget to sound the patient's mental state.

Of course, there is no perfect criterion by which one can differentiate in an absolute manner between the normal and the abnormal mind, except if the abnormality is at least somewhat advanced. That is why it is sometimes difficult to recognize a psychosis in its incipient stages—which, however, is no excuse for ignoring or overlooking it.

We know that the number of these light abnormal mental states is immense and that so far they have been largely overlooked by all concerned. Even the psychiatric worker, whose attention is more engaged by the fully developed cases, has studied and emphasized the light forms insufficiently.

Moreover, even among these cases there are various degrees of disturbance. Besides the disorders which constitute obstacles in the adjustment to the individual's environment, there are still finer, more elusive forms, which make us doubt the existence of any problem until we get completely acquainted with the facts of the case.

Persons with psychopathic personalities who are not real psychopaths but who often get into trouble and whose complaints are quite indefinite, incoherent, and misleading, are, or should be, just now of even greater significance to the military services than to civilian life. This is true in regard to both the work of organized military groups and the recruiting phase.

Much has been written about the errors committed by induction authorities in admitting abnormal persons or excluding those who are almost normal and easily adaptable; I myself have contributed a paper called "The Psychotic Patient and His Induction into the Army," published in *Medical Record* for March, 1943. But if it is a matter of diagnosing the very light forms, no one of the military medical men is probably to blame. In order to discover them, not only some experience is necessary, but also a good deal of time must be devoted to their examination, which, I understand, the Army doctors are not granted.

In civilian life, however, the time element is usually irrelevant. The careful medical student gives, or could give, all the time necessary to investigate any patient brought to him. The only thing that the conscientious practitioner must do in addition to his routine or customary work is to penetrate somewhat deeper into the patient's mind and situation in life than it is ordinarily done. He will find that this additional effort, instead of making his work more arduous, actually facilitates it and eases his burden. It clarifies even the physical aspect of the case. The therapy is more successful and comes closer to being preventive. Leading the patient to the right track will interfere with the development of a more advanced mental disturbance.

Of course, there is nothing new in this procedure. The intelligent doctor through the ages,

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from the earliest primitive healer to the best equipped scientist of any period, has frequently mingled some mental hygiene and psychotherapy with his treatment. Perhaps he has not always done it intentionally and systematically, but nevertheless it did belong to his armamentarium.

However, this tendency and ability to examine and treat both the soma and the psyche have diminished within the last hundred years and are dwindling even more in our own time. This has happened in proportion to the greater progress made by physical medicine and the firmer ground gained by psychiatry and its establishment as a science and a specialty. The general practitioner and the man who is interested in internal medicine have become busier with the more tangible diseases, with those having a more evident pathology. They have abandoned the abnormal mental states. The psychiatrist, in turn, has come to regard the more pronounced cases as his field or domain, while between the two the finer mind disturbances are neglected.

Neither all the incipient psychoses nor all the light mental abnormalities is always in need of real or formal treatment. They may never advance, but they may be in the background of any other trouble or disease and may complicate it. One must be keenly aware of their existence and prepared to recognize them, and one must know how to minimize their effects.

Case Reports

What should the physician do with a woman of 30 who complains of insomnia and nothing else? The examination shows only a slight, transitory, systolic murmur at the apex of the heart. If the physician offers her the sleeping remedy that she requests and lets it go at that, his work will be unscientific and incomplete. The cause of the trouble will remain untouched. By questioning her he will discover that she is in love with a married man who is separated from his wife and that the latter is living with their two children. Technical legal reasons interfere with his divorce and he cannot remarry before that is accomplished. Our patient, feeling guilty for cohabiting with him, tries to solve her problem by getting engaged to a man who is indifferent to her. Of course, that makes her more unhappy, and the situation is more complicated. She is depressed and unable to work. She is not mentally ill, but she is on the brink of some disturbance.

A man of 50 comes to the doctor for his "nose condition." He describes elaborately all sorts of symptoms apparently connected with his upper respiratory organs, also with his mouth and forehead. No, it is not a chronic rhinitis or sinusitis. Insist, and he will confess to you that his real trouble is the shape of his nose, a complaint more frequently heard from younger persons. But, in your opinion, even though the man is not an Adonis, there is nothing the matter with his nose. Its length, width, general outline, and proportion to the remainder of the face are as they should be and are in harmony with the person as a whole. He is not a real psychopath and is gainfully employed, not maladjusted, but lacking sociability. Of course, he is not married. Plastic surgery or a make-believe operation would not help him. He has had something done several years before, but to no avail. The old photos prove that his nose was of the same normal appearance then, and that no change occurred, except for an almost imperceptible operative scar near the ala. His condition is mental, rooted in his childhood and his upbringing.

So is the difficulty of a very attractive young married woman, whose chief complaint is a headache and in whom, search as you may, you will find no infirmity. She will, however, tell you reluctantly that she hates herself for being too tall, and, while admitting that, she looks at you attentively lest you find her ridiculous. As a matter of fact, her height does not reach 5 feet 7 inches, and she carries it splendidly. She is obsessed by the fear that, in spite of her age, 28, she may still grow, and, being ashamed of her stature, she prefers, whenever possible, to sit down rather than to stand up. Naturally, she avoids going out before sundown or to a dance in a well-lighted hall. That is all. For all intents and purposes she is normal. Her appearance, ordinary talk, and behavior would never betray her state of mind. Scratch a little further and you will find a jealousy gnawing her and an unfounded fear that her husband sees other women. Her condition is remediable if the doctor will take the pains to interview the husband as well and find the common ground for both.

Another woman, single, aged 44, just says, "My nerves are shot to pieces," which gives the doctor no clue. What will he do? Prescribe some sedative? She has had medication galore. Her menses were never regular, and now, for over a year, they have ceased altogether. A small fibroid uterine tumor is easily palpable, but its presence has been known for a long time, and it has not been growing. It requires no therapy at that age and under those circumstances. Hormone treatment, administered by a capable practitioner, was bad in this particular case, since it brought back the menstrual flow in a stronger form than she had ever had it. One must understand her mental state, her drab existence, the facts which interfered with her love life and marriage. Subjects on which to write a long novel may be disclosed. This person has had admirable resistance and adaptability, but now, when she begins to lose hold, a sympathetic and intelligent approach and some suggestive conversations may prevent a catastrophe.

And how will the doctor handle the case of the young man who suffers from digestive troubles only when he is afraid of losing his job? That is the time, incidentally, when he eats inordinately or goes on a drinking spree. Merely treating his temporary ailment does not make it disappear, and he returns with it again and again. Why does he worry about his working conditions? What makes him feel so uncertain? Go deeper into his history and mental make-up and you will find that he hates

his work and that he has always wanted to do something else. There is still time to do it, and some encouragement will go far toward helping him.

But we cannot say the same thing about a certain girl of 24, who has a good position in a bank, where she is regarded as extremely competent and where she makes rapid progress. However, she feels frustrated because she believes that a genius for painting is budding within her. She quits her work and enters an art school. There, alas, she is truthfully told that her talent is not far from nil, that she is wasting her time, and that in all these years she was greatly mistaken about herself. Her humiliation is deep, and, in utter defeat, she develops a museum of physical symptoms, which she starts peddling to the medical profession, never mentioning her mental chagrin. Indeed, she herself is unaware of the relationship between these two sides of her personality and is careful not to divulge her failure. The reason for her physicians' lack of understanding of her case and for their unacquaintance with her history was, until a short time ago, the fact that they had never thought of the possibility of a mental condition. One of them finally asked her about her dreams, and she started by stating that "they were worse than anything that the greatest cartoonists could invent" and that any person appearing in her dreams made fun of her. The conversation went on until, trusting the doctor, she told him, with sobs and tears, about her shame because she had bragged of her great future as an artist. Then the treatment became easier. Since nothing really bad had happened, all that was necessary to do was to convince her to return to her job at the bank. Although she hated to submit to that, she finally did it.

A college girl of 20, unwilling to tell her story, is sure that she has a venereal disease, although entirely ignorant as to the real meaning of these words. A superficial examination shows nothing except an insignificant genital irritation, which may be attributed to handling the vulva excessively. She insists on being examined further, but the condition of her hymen precludes a vaginal immission even of one finger or of a small speculum, and there is no absolute indication for doing it forcibly. Rectally, the uterus appears to be normal in size and tosition, as expected, and the adnexa cannot be felt at all. Laboratory analyses and tests are negative. She has never had any kind of sexual contact with a man, but at the end she concedes to have masturbated often externally and admits that this habit has become a compulsion and a vicious circle. Instead of gratifying her, it stimulates a greater desire. She is employed in an office, where she does her work rather well. She is sociable and sees friends, although she avoids boys. When alone, however, she is depressed and cries much. There is no homosexual tendency. She worries more about the possibility of some mysterious physical disease than about her immoderate indulgence. The doctor's denial of any malady is unconvincing to her. After several educational talks to straighten out her mind, she finally sees the light. When she begins to associate with men as well as with women, her tenseness and anxiety disappear, and she adjusts herself completely.

A physically beautiful woman of Slavic aristocratic origin talks in whispers and makes you believe that she suffers from a laryngeal disease. She refrains from loud conversation because she is sure that her organs of speech are affected. Otherwise she is active and busy—lately less and less so—making a living for herself and her relatives. No one in her surroundings suspects her of being mentally ill, but she is, although not in a visible manner. An attempt to cure her throat would undoubtedly only result in failure. She has had many difficulties in her life, first in Russia, where she and her family did all that they could to sabotage the revolution, then in other parts of the world, and finally in this country. Until a few years ago she had energy and a strong fighting spirit, but she is losing ground. Because of the war, she has been converted—in a feeble way—to the point of view of her social enemies and now feels that she was wrong in opposing them. She says that she and her class are defeated, and her attitude is that of the apathetic and useless characters of some of Chekhov's plays. She needs attention and cheering up. In fact, a few interviews partly rekindle her old fire, and she stops concentrating on her voice. This success may be temporary, but if in a year or two a few new urging talks will be necessary, they should not be denied to her. If she could be induced to join some political or social movement or to become interested in any activity, her problem might be solved for the rest of her life.

A boy becomes despondent, stops eating in his usual way, and is losing weight rapidly. When he appears at the clinic, he merely complains of great weakness and fatigue and inability to do his work. No ailment that could explain this condition is found, and the physician must proceed to discover the true cause of the trouble. Here is what happened in this case: The young man was engaged to marry a girl whom he loved dearly, but he recently learned that both her father and one of her brothers are, and have been for years, inmates of a hospital for mental diseases, and he has heard something of heredity. Little consolation can be offered to him, but what he needs is certainty, bad or good, to replace his general and nebulous fears and his indecision. That is preferred, and he grits his teeth and starts on a new path.

And what shall we say about this unmarried carpenter of 35, whose subjective symptoms are entirely physical and indicative of an ulcus ventriculi or duodeni? His further history seems incredible, but it is nevertheless true. He saw various gastroenterologists, has had a number of thorough examinations, including roentgen, but there are differences of opinion and disagreeing interpretations. The majority of his doctors believe him to be organically ill. Because he brought along all his reports and x-ray pictures to the military medical men, he was deferred by the Army, he claims. Since he does not want to serve, he is glad. But on the other hand he feels miserable, distressed, and desperate. The truth of the matter is that he has

tended to be neurotic since his great disillusionment, when his fiancée married another man. His illness dates back to that event. He is told to go among people and get himself new friends. Then he promptly falls in love with a girl who promises to marry him. He is "in the seventh heaven," as he says, and apparently in those regions ulcers are uncommon or they quickly evaporate, as it happens in this case.

A bright child of 6 is supposed to suffer from "asthma" and to get attacks a few times every week. He too is treated by several physicians, all concurring in that diagnosis. None of them has seen the fits, and the examination has never been more than cursory. An uncle of the patient was afflicted with the disease, and for several weeks he had lived with the family, so that the youngster has had a good opportunity to witness the spells. It is learned that this little boy is often cruelly beaten by both parents for misbehavior and that the punishments and the "asthmatic" attacks coincide. When all whipping was discontinued, the "asthma" was cured.

A colleague may ask us for advice. A man who has practiced medicine for several years and thinks himself immune to fear of disease and able to withstand any unpleasant news about himself is rejected by the Army Medical Corps because of an "arrested pulmonary tuberculosis, area greater than the maximum allowable." He never knew about the existence of this condition in his past or childhood, and he was convinced of his "perfect health." The shock is great, the disappointment keen, and he begins to brood. From the practical point of view he is the same person, just as vigorous as before, but he loses his buoyancy and self-confidence and starts to decay mentally. He is overattentive in regard to his own body, exaggerates his tiny symptoms. We can still save him from falling down the scale; we can still bring him back to his former optimism and usefulness.

Then there is the woman who for four months loses much weight, sleeps little and eats less, and is pale because she never leaves her apartment. All she wants is a "tonic," but her trouble is really due to the fact that about that time her 18-year-old only daughter "went wrong," and then disappeared, keeping her whereabouts unknown to the parents.

And if we do not meet so many people plagued by their economic difficulties as we did in the past, just now we see a large number of women whose complaints are ostensibly physical but who are really harassed by worries over their sons who are in the war areas.

Let me finish with the case of an old lady who, at the first glance and according to the information obtained from her children, is simply mentally ill and should be interned in a psychopathic hospital. She is forgetful, sleepless, listless, lacks appetite, and is uncommunicative. But investigation proves that she is more vivid and alert when she is not in the presence of her children, who, it is evident, want to get rid of her. She is not senile in the usual sense of the word. She understands well when spoken to, replies intelligently, but has a slight speech defect which points to an organic cerebral episode. Indeed, we learn that this great change in her personality has occurred suddenly—one day, a few months ago—that for a short time she was entirely unable to speak, and that the limbs of one side (whether the right or the left could not be ascertained) had been lagging behind for several days. This condition is the reverse of the previous descriptions and must be seriously brought to the attention of this woman's sons and daughters. As soon as they knew the situation and what was expected of them, they changed their minds about their mother and allowed the doctor to institute the correct therapy.

These cases are chosen from actual life. Only the lightest and the simplest and only those which are related to some physical or apparently physical disease have been presented.

None of them is so easy to treat as it may appear to the inexperienced. A patient may sometimes exclaim after the first session, "I feel better already," but it remains to be seen whether he will say the same thing within a week or two. However, easy or difficult, treatment is necessary. And where there is a will there is a way—any physician can be a preventive psychiatrist.

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ADDITION OF VITAMINS TO WHISKY UNDESIRABLE

"Even if it should become legal to add vitamins to alcoholic beverages, physiologic considerations would incline to make such formulas undesirable," the *Journal of the American Medical Association* for August 7 says in reference to the stability of vitamins in whisky.

"Present government regulations make it illegal to add vitamins to alcoholic beverages. Nevertheless, the fact that many of the diseases associated with chronic alcoholism are due primarily to deficiencies in the vitamin intake of the excessive drinker makes information on the stability of vitamins in whisky of more than academic interest.

A. F. Novak and S. L. Adams investigated this question by fortifying a standard brand of 86.8-proof whisky with riboflavin, thiamine, and nicotinic acid. Part of the whisky was exposed to daylight in clear bottles and part in amber bottles, and a control portion was stored in the dark. The result of the assays showed that riboflavin is unstable in whisky, since a reduction of 50 per cent of the amount added occurred in both paper-wrapped and amber bottles at the end of the two-month period. At the end of six months assays indicated that loss of thiamine or nicotinic acid had not occurred and that these members of the vitamin B complex appear to be stable in whisky."

Therapeutics

CONFERENCES ON THERAPY

THESE are stenographic reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments and institutions. The questions and discussions involve participation by members of the staff of the college and hospital, students, and visitors. The next report will appear in the December 1 issue and will concern "Special Manifestations of Left Heart Failure and Their Treatment."

Treatment of Lead Poisoning

DR. HARRY GOLD: The conference today is on the subject of lead poisoning.

There are a number of general headings under which we ought to consider the subject, and it seems to me that before the conference is over we should have the answers to some of the questions under these headings:

First, the prevention of lead poisoning; second, how to recognize that we are dealing with a case of lead poisoning, since the symptoms are apt not to be very characteristic, particularly in the early phases of the disease; third, how to treat the symptoms of lead poisoning; and, fourth, the cure of a case of lead poisoning (can we ever cure a case of lead poisoning, or do we ever?).

Under these four headings we might perhaps put our questions. In that way we might obtain a more comprehensive account of the management of a case of lead poisoning

Dr. Modell will first take up some of the pharmacologic aspects relating to the absorption, excretion, and distribution of lead.

DR. WALTER MODELL: The history of lead poisoning is old, and exposure to lead is widespread and commonplace. In the period between 1900 and 1905 there were about 2.5 deaths per million from lead poisoning, and as recently as 1936 one of each million of our population died of lead poisoning. But the number of recorded deaths does not indicate how widespread is the actual exposure to lead, or how many survive lead poisoning, or how many suffer or die from it without the benefit of diagnosis.

Not only are most of our fruits and vegetables sprayed with lead-containing insecticides, but the atmosphere at nose levels may contain a minute amount of lead sprayed from the exhausts of automobiles, most of which are fueled with leaded gasoline. And now that we have so many airplanes overhead, the lead is coming down from the heavens from the very heavily leaded, high octane aviation gasoline.

It has been determined by several workers that the average person today may consume in his food and beverages between 0.1 and 2 mg. of lead daily, with the mean about 0.3 mg. Yet very few exhibit symptoms of lead poisoning on such a diet. Whether or not symptoms develop depends not only on the amount of lead to which one is exposed but also on a number of factors which govern the absorption and mobilization of the lead.

The diet may determine whether symptoms of lead poisoning will develop after lead ingestion. Recently, evidence has been introduced to show that apples contain something which prevents lead poisoning. There is the important factor of the effect of calcium and phosphorus in the food on absorption, storage, and mobilization. Finally, the nature of the lead salt which is ingested may also play a part. It has recently been stated that lead arsenate is less toxic than other forms of ingested lead, and that far greater amounts of lead arsenate than of other salts may be taken without danger. Therefore, lead poisoning is a complex problem which is not solved simply by a determination of the amount of lead to which the patient is exposed.

Lead may be absorbed through the skin, through the gastrointestinal tract, by way of the respiratory system, and from the subcutaneous tissues. Before tetra-ethyl lead was introduced in the gasoline industry, absorption of lead by way of the skin was not an important factor in the incidence of poisoning. From the unbroken skin other forms of lead probably were never absorbed in amounts sufficient to cause poisoning, but tetra-ethyl lead is rapidly absorbed from the skin. In the early days of its use there were a number of deaths among workers exposed to this material.

Absorption of lead from the gastrointestinal tract is slow and incomplete. The probability is that under ordinary circumstances 90 per cent of the lead ingested passes unabsorbed through the gastrointestinal tract.

There is the much debated question of the effect of the amount of calcium in the diet on lead absorption. We are speaking now—and it

is important to make this distinction—only of lead in the intestinal tract and not of lead already absorbed. Some workers contend that high calcium diets prevent the absorption of lead and that low calcium diets enhance its absorption. It has been stated by some that it is practically impossible to produce poisoning in experimental animals on a high calcium intake when lead is administered orally, whereas poisoning may be produced when the diet is deficient in calcium. Vitamin D appears to enhance the absorption of lead from the intestinal tract.

Absorption of lead from the respiratory system is exceedingly rapid and complete, so that all inspired lead eventually enters the circulatory system. Therefore, the amount of lead in vapors and fumes is exceedingly important.

Finally, there is the rare case in human beings of lead that is introduced subcutaneously. Occasionally metallic lead which has been introduced under the skin in the form of little pellets or bullets has been known to produce poisoning after a long period of time.

Lead circulates in the blood stream presumably in the form of a di-lead phosphate. It reaches all the tissues and is deposited there as the trilead phosphate. The greatest concentration is found in the liver, in the kidneys, and in the bones. The bones tend to fix lead—to hold it with greater tenacity than do the other tissues.

Lead is more labile in the kidneys, in the liver, and in other organs and soft tissues, so that with time the lead tends more and more to concentrate in the bones. After a long period has elapsed, almost no lead may be found anywhere in the body except in the bones.

Lead circulates in the blood, and it is said that a value of 0.06 mg. per 100 cc. of blood is about the maximum level for normal people. When the level is higher, symptoms of toxicity are likely to appear. But be on your guard about any so-called normal values, of which this is one, because there are a number of factors not associated with actual lead poisoning which tend to raise or lower such figures and to obscure the diagnosis of lead poisoning.

Lead is eliminated largely in the feces. Usually most of the lead in the feces represents unabsorbed ingested lead. A large proportion of the lead which is absorbed is taken up by the liver and excreted into the bile, and finally reaches the feces in that way. Some lead is excreted by the intestine itself; therefore when the statement is made that 0.25 mg. per day of lead in the feces is normal, this value must be understood to represent mostly unabsorbed ingested lead, and only a small amount of absorbed lead excreted by the liver and intestine. When lead is completely removed from the diet, values of fecal lead take on an entirely different significance, since they now represent absorbed lead alone.

Finally we come to the consideration of the lead excreted by the kidneys. Lead found in the urine is always absorbed lead, and the normal value is a small fraction of a milligram per day. In an average diet, it is generally from 35 to 100 gamma of lead per day. Considerably higher amounts may frequently be found in the absence of any symptoms of poisoning, but usually such high values indicate unusual lead deposits. Again, the significance of lead in the urine must be considered carefully because the recovery of only a few gamma may not indicate a complete absence of lead in the body. The lead may be there but may be held very tenaciously by the bones and not liberated at that particular time. On the other hand, large amounts of lead in the urine may indicate mobilization of small accumulations liberated suddenly by some metabolic change in the bones or body.

It is stated in the literature that when fecal lead rises above 1.1 mg. per day and is found in conjunction with more than 0.2 mg. of urine lead per day, one may be reasonably certain that unusual deposits of lead are present in the body. But the combination of fecal and urinary lead must be present to justify such an assumption.

Thus, the significance of values for lead in blood or excreta taken alone is never quite clear. They must be considered in conjunction with history of exposure, present intake of lead, and, finally, in relation to signs and symptoms of poisoning.

Lead, once absorbed, tends to follow the stream of calcium in the body, and here again the distinction between lead which has been absorbed and that which has been ingested is important.

We are now considering absorbed lead alone. Such lead tends to follow the stream of calcium to the bones if it is being immobilized, and out of the bones if it is being mobilized.

Thus, one would expect—and indeed it has been shown—that high calcium diets tend to force lead from the blood stream to the bones. For that reason calcium is used in the treatment of acute lead poisoning to remove the lead quickly from the blood stream and to deposit it in an organ, the skeleton, which appears not to suffer from its presence.

Acid-forming drugs, such as ammonium chloride, tend to mobilize lead from the bones, and their use is followed by a rise in the blood lead level and an increase in the excretion of lead in the urine in people with unusually high lead deposits. Sodium bicarbonate is of special interest

in this connection. If given in large amounts under usual conditions, stored lead is liberated presumably because of the change in pH induced, and the narrow range of lead phosphate insolubility.

On the other hand, if acidosis causes lead mobilization, sodium bicarbonate will direct it toward the bones by neutralizing the acidosis.

Of all the hormones, parathormone is the only one which has been found to have any effect on the course of lead metabolism. As might be expected from its action on calcium, it increases the liberation of lead from the bones.

Nor have vitamins escaped trial in the treatment of lead poisoning. Vitamin D is used because it accelerates the deposition of lead in the bones, just as it does for calcium. Vitamin C has recently been reported to be of value. One of the theories advanced was that a lead ascorbate was found which was soluble but not ionizable, and therefore produced a nontoxic lead salt which was easily excreted. The mass of evidence is that vitamin C is of no value in lead poisoning.

Finally, vitamin B_1 has been used in the treatment of lead palsy, but here again the evidence for its usefulness is not impressive.

Something should be said about calcium in the treatment of lead colic. In the acute lead colic, slow intravenous injections of calcium often give dramatic relief. This action of calcium is considered separately because it is not due to the immobilization of lead, but probably to a direct action on the smooth muscle involved in the colic.

Just a word about tetra-ethyl lead. It is the form of lead which is used extensively in making high octane "anti-knock" gasoline. It is absorbed readily from the skin and may cause serious and even fatal lead poisoning. But restrictions on the concentration of "ethyl" lead in automobile gasoline today make it safe for the automobile driver. Gasoline-station workers appear not to suffer from it, although they are constantly exposed to its vapors and not rarely get it on their hands. The greatest danger comes from aviation gasoline and from the pure tetra-ethyl lead before it is mixed with gasoline.

After absorption, tetra-ethyl lead is converted to forms which are ordinarily found in the body after other types of lead poisoning. All the symptoms of poisoning which are associated with tetra-ethyl lead have been attributable directly to the lead content and not to any specific characteristics of tetra-ethyl lead other than its mode of absorption. The rapid appearance of convulsions may be due only to the rapid absorption and rapidly developed high concentration in the blood. It should be mentioned, however, that some workers feel that tetra-ethyl lead has specific and peculiar toxicologic properties other than those arising from rapid penetration of the skin.

DR. GOLD: Dr. Reznikoff, will you take up the discussion of the treatment of lead poisoning?

DR. PAUL REZNIKOFF: The first phase of the discussion should concern the prevention of lead poisoning. What constitute the most important types of lead contacts? In general, the most frequent source of lead poisoning is industry; next in numerical importance are the cases of infants and children who come in contact with lead by sucking toys or other objects which have been painted with pigments containing lead. There are other less important sources of lead poisoning. Every now and then accidental lead poisoning occurs in adults. Storage-battery cases were burned for fuel not so long ago, and the fumes of the lead caused poisoning. During prohibition, wines were stored in casks which were soldered with lead solder. The wine dissolved the lead, and many persons who drank the wine ingested large amounts of lead and developed lead poisoning. Lead stills used during that time also were a source of lead poisoning.

In general it might be said that the ingestion of lead sprayed on fruits and vegetables does not constitute a serious menace. One reads in the literature of lead poisoning due to lead pipes and other sources of that type. But on close investigation it is very difficult to find cases, certainly any but exceptional cases, of lead poisoning due to such causes or to the ingestion of foods which are sprayed with lead. There are many claims of lead poisoning, but proved cases are very rare.

Of the industries which are most dangerous as far as lead poisoning is concerned, there are, in the first place, those in which the most lead is used, especially lead in the form of dust or fumes—for example, lead mining, lead smelting, paint manufacturing; then in painting and the preparation of surfaces for paint; also printers, those who deal with lead type, or linotypers who work near pots of molten type-metal; and plumbers who do soldering in closed places. A very important cause of lead poisoning is from lead burning. Subject to this are people who use heat to remove paint—acetylene torch workers, for example, like those who dismantled the Sixth Avenue Elevated with sixty years of paint on it. Then there are the enamel workers and pottery workers. Finally, there are those who are exposed to concentrated sprays of lead arsenate while spraying insecticides on crops and, in the days before the present era, there were also the rubber tire compounders.

I may have omitted a few industries, especially the newer ones, but these are among the most important and give a good idea of what type of industry constitutes a lead hazard. New industries are important because new uses for lead are constantly being found. "Ethyl" gas is an example of a new use for lead. Today we have very few cases of poisoning due to "leaded" gas contact because of the strict regulations covering its use. However, we do find lead poisoning when these regulations are ignored, occasionally by people who clean the upholstery in their cars with ethyl gasoline. Making sure that they get a good cleaning agent, these people buy the special gasoline and use it without gloves or adequate ventilation.

What can be done to prevent lead poisoning? In the first place, we know that certain types of exposure are conducive to lead poisoning—for example, a great many fumes or a lot of dust in the air. How much lead in the atmosphere is dangerous we do not know. Government regulations are rather general, and we know that small amounts of lead may cause poisoning in some people, while much larger amounts will not poison others.

In general—and this is true of all industrial hygiene—it is far more effective to control the environment than to expect the individual to control his exposure. What do we mean by that? Intelligent ventilation. Drawing fumes down from the work table, for example, instead of having them go up past the worker's nose is much more effective than a mask. It is pretty hard to work six or eight hours a day, painting, with a mask on. Workers remove the mask when they tire. Therefore, as a rule protective measures are most effective when their application is not under the control of the worker but is automatically taken care of for him by proper environmental hygienic control.

The problem of poisoning in children I will dismiss with this: regulations should prohibit the painting of toys with lead pigment paints. This is already done in some states.

It is important to consider the type of person who gets lead poisoning. In view of the relationship to calcium metabolism, it is desirable to keep out of lead industries all those who have difficulty storing calcium. These are women and children, whose calcium metabolism is very labile, and colored people. Negro children are much more susceptible to rickets than white children and their parents are much more susceptible to lead poisoning than white adults. This is probably due to the fact that ultraviolet light has more difficulty penetrating the skin because of the heavy pigmented layer.

It is important to keep alcoholics out of lead industries. Alcoholism offers one of the best ways of developing lead poisoning, perhaps ultimately because of starvation and acidosis, but whatever the true explanation, alcoholism is important. Finally, it is important to keep people out of lead industries who have debilitating infections.

In the industry it would be ideal to have all workers on a high calcium diet, including a quart of milk a day and adequate vitamin D in some form. It is very important, in view of the special symptom of lead poisoning, to see that workers' bowels move regularly.

When lead poisoning develops, how do we treat it in the acute stage? We are all agreed that the way to treat acute plumbism is to remove the patient from the environment, and a high calcium intake is required to fix whatever lead is in circulation in the bones as quickly as possible. At least 2 Gm. of calcium a day is necessary. Milk is the best form in which to give calcium, but if milk cannot be tolerated, calcium gluconate or other calcium salts, given by mouth, may be substituted. In addition, vitamin D, in amounts equivalent to that in a tablespoonful of cod liver oil, should be administered.

After the patient has recovered from the acute attack, the question of which of the two schools of therapy to follow arises. One is to keep on storing the lead in the bones, to keep it out of the circulation by immobilizing it with a continued high calcium intake and vitamin D. The other —and this is Aub's plan— is to liberate the lead gradually under careful control; to give the patient a low calcium intake, equivalent to 0.2 Gm. a day, not any higher, and in addition some mobilizing salt like ammonium chloride in amounts of at least 4 Gm. a day.

My feeling is that if there is perfect clinical and chemical control of the patient, the liberation method is probably safe. But you must be careful not to precipitate an attack, and if there is not perfect control of the patient—and this is pretty difficult to obtain with laborers who have to work during the day—the safest procedure is to store lead in the bones. In children and in infants lead should never be mobilized because children are so susceptible to the dangerous and often fatal form of lead poisoning, encephalopathy.

Let us now consider the therapy of the specific symptoms and signs of plumbism. The most common complaint in lead poisoning is colic. Treat it with 10 cc. of a 10 to 20 per cent solution of calcium gluconate or chloride given slowly intravenously. This presumably relaxes the musculature. In addition, the patients may be given atropine, $1/100$ to $1/150$ grain, repeated up to the point of tolerance as shown by pupillary size and dryness of mouth; nitroglycerine $1/100$

to 1/120 grain; a hot water bag; and saline cathartics. As a rule, morphine is not very effective; in fact, many patients are made worse by it. With such treatment—repeating the calcium injections two or three times a day if necessary—it is my experience that acute colic is rather readily controlled within seventy-two hours, or at most in a week. Therefore, if a patient continues to have abdominal pain after a week, some other disease should be strongly suspected.

The next important symptom or sign of lead poisoning is peripheral palsy. I do not call it peripheral neuritis because many of us think it is primarily muscular. Most important in treating peripheral palsy is splinting to prevent overstretching. The splints should be kept on until recovery. In addition, light massage; the whirlpool bath; interrupted galvanic current, first passive and then active, re-education exercises; warm baths at 110 F are all useful physiotherapeutic procedures in treating peripheral palsy. But the most important of all is the prevention of overstretching of the palsied muscles.

Encephalopathy is the only type of lead poisoning which causes death. It may be manifested by mild symptoms such as headache, loss of memory, irritability. It may go on to produce very serious conditions; maniacal manifestations, convulsions, and coma, especially in infants and children. It is best treated by giving calcium and vitamin D to store the lead in the bones and by reducing the spinal fluid pressure. The latter may be done in one of two ways: (1) frequent lumbar taps, the frequency and amount of fluid taken off depending upon the pressure; or (2) by giving hypertonic solutions. A 25 per cent magnesium sulfate solution will reduce the cerebrospinal pressure. In an adult we usually perform lumbar taps.

For the treatment of convulsions we usually give barbiturates intravenously and some give avertin rectally to anesthetize the patient. Magnesium sulfate, 50 per cent, 1 or 2 cc. intravenously or intramuscularly, also causes relaxation.

The anemia of lead poisoning is not due to intrinsic or extrinsic factor deficiency or to iron deficiency. Therefore, iron and liver extract are of no value. If the anemia is very severe, give transfusions. If anemia is not very severe and if the patient recovers from the lead poisoning, the anemia takes care of itself.

All the other complaints should be treated symptomatically. There is a difference of opinion as to whether lead causes many of the signs and symptoms usually attributed to lead poisoning—for instance, nephritis, hypertension, or arteriosclerosis. These must be treated wherever found, whether or not lead is the causative agent. But whenever a patient who has been exposed to lead develops some important or serious disease, give adequate amounts of calcium and vitamin D to store the lead in the bones and avoid superimposing lead poisoning on some other illness.

DR. GOLD: We are now ready for questions.

VISITOR: I would like to ask Dr. Reznikoff about the so-called lead line. Is this the only positive indication of lead poisoning?

DR. REZNIKOFF: The lead line is due to a deposit of lead sulfide under the epithelium of the gums. You can make sure that it is in the gums by putting a slip of paper between the tooth and gums. If the line disappears, it is on the tooth and not on the gums. The lead line appears only when lead is present in the circulation and when hydrogen sulfide is produced by debris and carious teeth. Thus, those with good oral hygiene may not develop the lead line, even though they are poisoned by lead.

The lead line, if present, is a very important diagnostic point. The only other line which might be confused with it is the bismuth line. The bismuth line extends across the gums and is very fine, while the lead line is usually punctate in certain places. You should look in back of the teeth, as well as the front of them, for the lead sulfide deposits. The lead line may exist, however, and not constitute evidence of acute poisoning. The lead may be gone from the circulation, but the line may last for several months before it disappears.

DR. JANET TRAVELL: Can all of the lead be removed from the body by the process of deleading?

DR. REZNIKOFF: I doubt whether all of the lead can be removed. It seems to me that it would be impossible to remove all the lead from the bones without decalcifying all the bone. Dr. Aub's idea is to get rid only of some of the lead, not all the lead in the body, because it is the labile lead which may be liberated and is a potential source of poisoning.

DR. TRAVELL: How would you know when to stop the process of deleading?

DR. REZNIKOFF: I do not delead, so I do not worry about that. It makes life simple. But I suppose Dr. Aub would say that when the deleading process has been carried to such a point that normal amounts of lead are present in the urine and stools, while the diet lead is controlled, it would be proper to stop.

DR. GOLD: What would you do for a patient who has been a painter all his life and whom you see for the first time with myoclonic fits and mental confusion? You are pretty sure from

those symptoms, the lead line, and the history, that he has lead encephalopathy. You have already told us what you would do to relieve the acute symptoms. Within a week he is free of all of these symptoms, and he seems pretty well. What is the procedure from then on?

DR. REZNIKOFF: He feels well?

DR. GOLD: He feels and looks quite well.

DR. REZNIKOFF: If he feels all right and looks well, I would just keep him well.

DR. GOLD: Three months later he has another attack of lead encephalopathy.

DR. REZNIKOFF: Do you know of such a case?

DR. GOLD: Yes.

DR. REZNIKOFF: A proper regimen would be freedom from exposure to lead, with an adequate calcium and vitamin D intake.

DR. GOLD: Two grams of calcium lactate?

DR. REZNIKOFF: Two grams of total calcium in the diet and supplemental vitamin D. If the patient then remains free from infections, he should not have a relapse. In fact, I have never seen it. Those who come back with relapses always have given a history of stopping the calcium or the vitamin D, or they say, "I worked overtime and didn't get any sleep"—something like that. The only thing to do under such conditions is to control the environment as much as possible. The attacks due to liberation of lead from the bone, just like the liberation of calcium from the bones, do not appear without some good biochemical reasons. The therapy which once stored the calcium and lead should continue to do so.

DR. CHARLES H. WHEELER: Suppose your patient for one reason or another finds it impossible to maintain such a regimen: he may be unintelligent or is uncooperative. Would you not try to delead under those circumstances?

DR. REZNIKOFF: I would not because the person who lacks the intelligence to cooperate certainly will not give the assistance necessary to delead with safety. To delead, one must not only take medication faithfully but also must collect specimens and be on the alert for the first symptom of lead intoxication.

DR. WHEELER: Can't you delead a patient in the hospital, or would that take too long?

DR. REZNIKOFF: If I were to delead, I would delead in the hospital. I would say the whole process of deleading should occur over a period of a few months.

DR. MODELL: I want to ask Dr. Reznikoff whether he thinks phosphate is important in the diet.

DR. REZNIKOFF: It is very important in children to have a positive phosphate balance.

DR. MODELL: I also want to ask Dr. Reznikoff whether he feels that calcium in the diet prevents the absorption of lead or whether its effect is only on lead after absorption.

DR. REZNIKOFF: Do you mean its effect on the absorption of inspired lead?

DR. MODELL: Ingested lead.

DR. REZNIKOFF: There is some recent work to indicate that calcium acts locally. In general, we know that a high calcium diet will prevent the symptoms of lead poisoning.

DR. MODELL: Perhaps, then, it serves two purposes: it inhibits lead absorption and fixes lead after absorption.

INTERN: Why should a man chronically exposed to lead all his life suddenly develop lead poisoning?

DR. REZNIKOFF: In my experience there is usually a good reason for it; a chronic infection or poor nutrition with low calcium intake.

Sometimes it is very difficult to find a reason for the development of lead poisoning. For example, the group of workers who dismantled the Sixth Avenue Elevated swore that they used their masks all the time. Their masks were adequate, and the workers did use them while working. But they did not use the masks properly. When using a torch to cut through girders heavily coated with lead pigment, they kept their masks on.

However, as soon as they stopped using the torch, many took off the masks to expectorate. Thus they kept their masks on while they were actually using the acetylene torch, but when they stopped and the atmosphere was still full of lead, they exposed themselves to it.

It is very difficult to follow workmen through all their detailed chores, day and night. Certainly most of the people I saw with acute lead poisoning from the dismantling job drank considerably more alcohol than those who were not affected by the lead.

STUDENT: Is stippling specific for lead poisoning?

DR. REZNIKOFF: No, in my opinion, stippling is just discrete reticulum. It is not specific for lead poisoning, and it is not evidence of lead poisoning. It is just evidence, if it does occur in lead poisoning, of lead absorption.

DR. GOLD: What is the least you accept in the way of disability for a diagnosis of lead poisoning?

DR. REZNIKOFF: Colic, paralysis, encephalopathy, or anemia due to lead poisoning, and nothing else. Those, I would say, are the chief ones. There is another type of paralysis that I should mention which is not as common. This is a type characterized by atrophic palsy apparently due to anterior horn cell involvement.

DR. GOLD: You would not depend at all on laboratory tests?

DR. REZNIKOFF: I would depend on the laboratory tests as corroborative evidence. To make a diagnosis of poisoning you should have the following: (1) exposure; (2) evidence of absorption; (3) signs and symptoms of disability due to lead poisoning. Those are the three criteria in my mind for an adequate diagnosis.

DR. MODELL: If the urine test for lead was negative, would you rule out lead poisoning?

DR. REZNIKOFF: I would question the laboratory.

DR. MODELL: Suppose you trusted the laboratory. Would you rule it out then?

DR. REZNIKOFF: You would have still the question of absorption. If a patient with lead poisoning goes on a high calcium diet, his urine would be found to have very little lead in it, but still he has poisoning.

STUDENT: Is blood analysis of any value?

DR. REZNIKOFF: It is not of practical importance because it is very hard to do. You deal with a small amount of blood and so the error may be very great. Besides, it only tells what is circulating at a particular moment, not what has been absorbed.

STUDENT: If a patient detested milk, how would you treat him?

DR. REZNIKOFF: He could have cheese instead of milk. But as a matter of fact, if he lives on a sensible routine, he does not have to have an especially high calcium intake. A positive calcium balance is all that is necessary.

DR. WHEELER: I should like to ask Dr. Modell whether all forms of lead are absorbed readily through the skin or whether only the highly ionized forms are absorbed. Otherwise I don't understand why lead can be absorbed through the skin and yet why a bullet may remain for years in the muscle without marked absorption.

DR. MODELL: It is the form of lead which determines whether it will be absorbed from the skin, as in the case of tetra-ethyl lead, which is the only important form so absorbed.

DR. REZNIKOFF: Any organic lead compound may be absorbed from the skin.

DR. MODELL: Half an hour after painting the skin with tetra-ethyl lead, lead can be demonstrated in the blood.

DR. REZNIKOFF: You can demonstrate it even sooner. If you stick a rabbit's ear in concentrated tetra-ethyl lead, the rabbit almost immediately goes into convulsions. In the old days, if a worker put his hand in tetra-ethyl lead accidentally, he collapsed before he could get across the room to a sink because it was absorbed so amazingly fast.

I would like to mention one thing more. There is no unanimity of opinion that the effect of tetra-ethyl lead is due simply to its lead content. Some workers believe there is a special action of the organic lead.

VISITOR: How often do you see lead gout and what does it represent?

DR. REZNIKOFF: You read of it in the older literature. I doubt very much if there is such a thing as lead gout. I might say textbooks mention lead arthritis too. I don't know what lead poisoning was in the Middle Ages or one hundred years ago, but it is my impression that pain in a joint due to lead poisoning is really due to muscular weakness, which causes pain if that part of the limb is used excessively.

DR. MODELL: How much milk contains 2 Gm. of calcium, and who can drink that much?

DR. TRAVELL: It is nearly four quarts.

DR. REZNIKOFF: Of course, there is a lot of calcium in vegetables and in cheese, which could be given to patients as another source of calcium.

DR. GOLD: If one uses the lactate, the chloride, or the gluconate to obtain 2 Gm., one should bear in mind that the gluconate contains only about 10 per cent calcium, the chloride about 25 per cent, and the lactate about 13. To get 2 Gm. of calcium from the chloride, therefore, about 8 Gm. are required; about 14 Gm. are required of the lactate, and in the case of the gluconate about 20 Gm. are needed. I thought you might be interested in those approximate equivalents.

DR. REZNIKOFF: I think that, intravenously, for colic the gluconate is less toxic. Dr. Aub thinks it may be less effective than the chloride.

DR. GOLD: It is well to know that calcium gluconate is commonly supplied in ampules, 10 per cent solution, made up with citric acid, lactic acid, and dextrose to establish a stable solution.

DR. WHEELER: You did not mention the use of parathormone or the newer concentrated forms of parathyroid principle? I expect you do not use that yourself? Do the people who rely on deleading find that a useful adjuvant?

DR. REZNIKOFF: Hunter tried that with Aub as an experiment. They did find that after parathyroid administration there was a tremendous outpouring of lead. However, it is not a practical method.

DR. GOLD: From everything that has been said, it is clear that no laboratory test can be relied upon as an early guide to the diagnosis of the more subtle symptoms seen in early lead poisoning. Would that be a fair statement? I think that problem comes up in connection with industrial insurance.

DR. REZNIKOFF: I would put it this way: No single laboratory test is specific.

DR. GOLD: If, for example, you found that a patient who has been sufficiently exposed to lead and who suffers vague symptoms such as pallor,

mild anemia, and muscular weakness or fatigue, excreted in his urine 0.25 mg. of lead per 24 hours on repeated examination, would you give any weight to these laboratory data?

DR. REZNIKOFF: I would decide that as I decide any other clinical problem. Probably in the absence of any other cause for those complaints and in the presence of that amount of lead in his urine, the man is suffering from lead poisoning.

DR. GOLD: That is several times the average amount in normal urine as given by some authors.

DR. REZNIKOFF: It is only about two and one-half times.

DR. GOLD: It depends on what figure one takes.

DR. REZNIKOFF: The normal amount is 0.1 mg. per liter.

DR. WHEELER: I was interested in that problem a couple of years ago when we had some patients in the hospital here, and in looking through the literature I found most enormous variations in the figures which were given for the normal range. Some workers reported figures which were ten to twenty times as much as others.

DR. REZNIKOFF: I think the best data on the subject are those reported by Kehoe in the *Journal of Industrial Hygiene.*

DR. MODELL: He gives high normal values as compared with other workers.

DR. REZNIKOFF: I would accept his data.

Summary

DR. MODELL: Even though all of us are constantly ingesting small amounts of lead in our food, this type of exposure does not seem to be harmful. Ingested lead rarely causes poisoning because of poor absorption. The greatest danger of lead poisoning exists when fumes are inhaled; thus industry is the chief source of lead poisoning. New industrial uses for lead always present a particularly grave danger because the problem will not be recognized nor means of prevention developed until after many cases of poisoning have been uncovered.

The prevention of poisoning is most important. Control of exposure and proper industrial hygiene are necessary. These should not be left to the worker but should be automatically performed for him. Other factors which control lead metabolism should be considered. The prevention of poisoning in those who are exposed can often be accomplished by a diet rich in vitamin D and calcium (preferably as milk). The general state of health and also nutrition, age, sex, and alcoholism are all important.

The diagnosis of lead poisoning is often difficult. No single sign is pathognomonic. The history of exposure, anemia, weakness, palsy, colic, encephalopathy, lead line, and red cell stippling help to establish the diagnosis. The chemical determination of the amount of lead in the blood, urine, and feces is sometimes helpful.

It is a difficult laboratory procedure, and there are differences of opinion on what constitutes normal and abnormal values. Any single value may be misleading because lead is labile and the amount in the urine may reflect this lability rather than the amount of lead stored. Nevertheless, when large amounts of lead are found both in the urine (> 0.2 mg.) and feces (> 1.0 mg.), it supports the diagnosis of lead poisoning.

Except for purely symptomatic treatment the therapy of lead poisoning is based on the parallelism between the calcium and lead streams.

In the acute stages of lead poisoning the lead is forced into the bones with large doses of calcium (2 Gm. daily as calcium in the form of milk or as a calcium salt), to prevent more serious effects of circulating lead, most especially lead encephalopathy. Calcium chloride (10 cc. of 10 per cent to 20 per cent solution) given intravenously may quickly relieve the pain of acute lead colic. After the symptoms of acute lead poisoning have been relieved, the subsequent treatment comes under the head of the therapy of chronic lead poisoning.

The treatment of chronic lead poisoning depends largely on which school one prefers to belong to; the "deleaders" or the "nondeleaders." The former try to eliminate all labile lead by carefully liberating it from the bones with a calcium deficient diet and drugs (less than 0.2 Gm. calcium and about 4 Gm. ammonium chloride daily).

This type of therapy requires the utmost cooperation from the patient and great caution if episodes of acute poisoning are to be avoided. Carefully and thoroughly carried out, this method may free a patient from enough labile lead to eliminate permanently the possibility of recurrent seizures of acute poisoning.

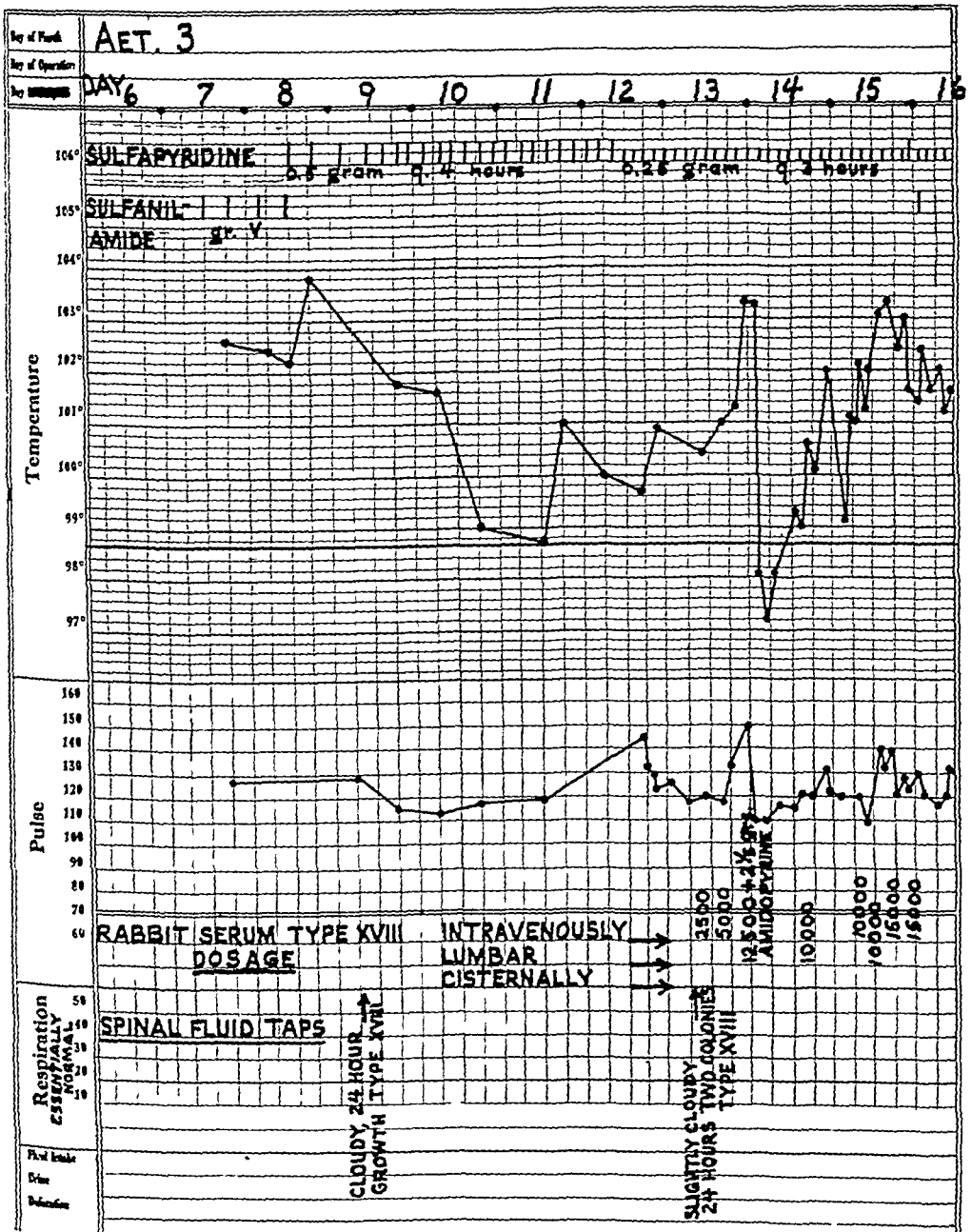
When the alternative method is followed, the attempt is made to fix in the bones, more or less permanently, all the lead in the body. This is accomplished by removal from exposure and by good nutrition, with special regard to calcium and vitamin D intake—i.e., one continues the regimen started in the treatment of the acute stage of lead poisoning. This is the simpler and safer method, especially if the patient cannot cooperate or cannot enter the hospital for the "deleading" process. On the other hand, the hazard is always present that under adverse circumstances, such as illness or malnutrition, sudden mobilization of the stored lead may occur with the development of acute poisoning.

Case Report

SULFAPYRIDINE FASTNESS IN A CASE OF PNEUMOCOCCIC MENINGITIS

CLARK S. SHUMAN, M.D., Black River, New York.

R. W. ROSS,[1] in England, and C. M. MacLeod,[2] in this country, have demonstrated that certain strains of pneumococci can change their metabolism after their growth has been inhibited for a time by sulfapyridine and can become adapted to growth in its presence. T. C. Backhouse[3] first demonstrated sulfapyridine fastness in a human case of pneumonia. His patient responded well to sulfa-



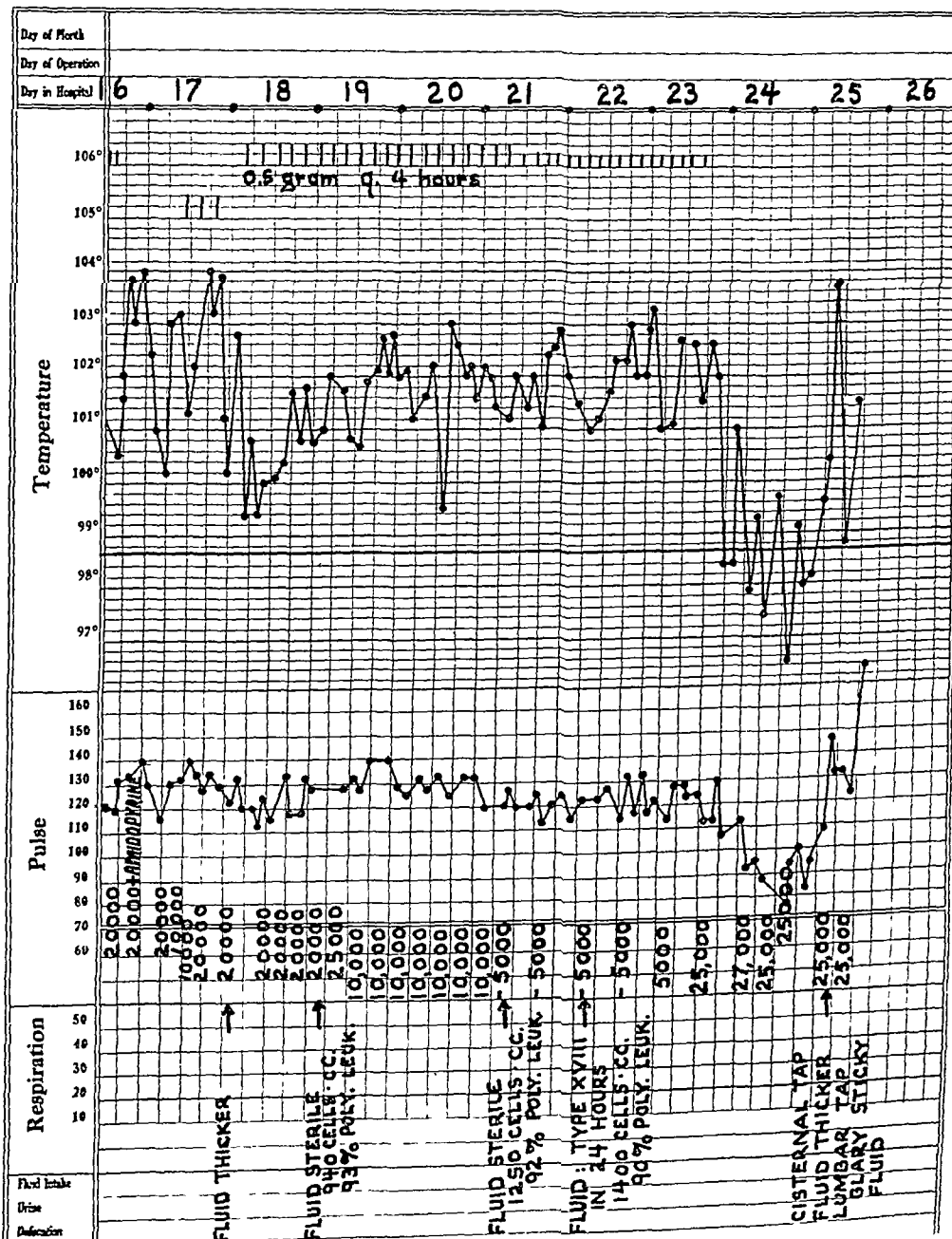
pyridine for a while and then became febrile again and died, in spite of a spinal fluid concentration of 33 mg. of M. and B. 693 per cc.

The following case of pneumococcic meningitis likewise responded well to sulfapyridine at first and then became febrile in spite of continued administration.

Case Report

A girl of 3 years, weighing about 28 pounds, first received medical attention about the seventh day of her illness. There had been some back rigidity for at least three days. There was no history of an original focus of infection. Vomiting and diarrhea had occurred at the onset.

Examination revealed normal ear drums, negative mastoid, and negative chest findings except for rapid heart beat. Pupils were equal and reacted with a little sluggishness. There was some photophobia. Kernig's sign was positive, and the patient's chin was elevated, her back stiff, and her



abdomen soft, with a very active umbilical reflex.

The girl was transferred to her home. Sulfanilamide gave no improvement, and sulfapyridine was started. Two days later she was reported much improved and with a normal temperature. Within eighteen hours, however, her fever was returning, and she was developing spinal rigidity again. By this time the spinal fluid tapped had been grown on blood agar and typed. Rabbit serum was obtained from New York. Because of vomiting and a rapidly increasing pulse, sulfapyridine dosage was cut from 0.5 Gm. every four hours to 0.25 Gm. every three hours.

The child received 35 Gm. of sulfapyridine orally between the eighth and twenty-fifth days of illness, and 135,000 units of Type XVIII rabbit serum were given intravenously in 9 injections, 200,000 units by lumbar puncture in 11 injections, and 225,000 units cisternally in 17 injections, between the thirteenth day of illness and the day of death.

With spinal drainage and administration of serum, there was a second period of improvement and a reduction of spinal pressure although the temperature remained high. The child became stuporous two days before death.

Laboratory Data.—Type XVIII pneumococcus was determined by the Neufeld-Sabin reaction. Spinal fluid became sterile on the nineteenth day of illness, but the cell count continued to increase until death. Viable organisms were found again on the twenty-second day. Before death the spinal fluid was slightly yellow, sticky, and glary, and would not pass the lumbar needle.

A Wassermann test was negative. Urine was negative except for a terminal albuminuria. Hemoglobin was 60 per cent (Dare).

Conclusions

A patient with pneumococcic meningitis in whom no localizing focus was found responded favorably to sulfapyridine until sulfapyridine fastness occurred. Following this, large doses of rabbit serum in combination with sulfapyridine given orally failed, death occurring on the twenty-fifth day of illness.

Since in a given case the occurrence of sulfapyridine fastness cannot be predicted it is well to start both serotherapy and sulfapyridine together, the latter preferably both orally and intravenously.[4,5]

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FOUNDATIONS INVEST IN WAR BONDS

More than $40,000,000 from endowment funds, established to finance charitable, research, and educational work were invested in War Bonds during the Third War Loan drive, it was learned from reports submitted to William E. Cotter, director of the Commerce and Industry Division of the War Finance Committee for New York State.

Douglas Gibbons, president of Douglas Gibbons & Co. and chairman of the professional and special services section, and his cochairman, Parker Monroe, reported bonds already purchased and pledged by a score of the leading foundations in America probably will exceed the $40,000,000 figure.

Bankers and lawyers serving as counselors and directors of the nation's great trust funds regard such heavy investment in War Bonds as an important testimonial to the War Bond program.

Amounts invested represent in some instances as much as 60 per cent of the total capital of some foundations, Mr. Gibbons said.

"The ordinary businessman and wage-earner cannot fail to be impressed if he realizes that here are foundations which guard their funds zealously for the future, placing a large proportion of their money in War Bonds. With institutions of this type looking to War Bonds as their wisest investment, surely no one can deny that it is the safest and best investment on earth."

The group of five Carnegie foundations bought $10,000,000 in bonds alone during the Third War Loan. The largest investor was the Carnegie Corporation of New York, whose trustees directed that $6,500,000 be put in War Bonds.

Two Rockefeller foundations, the General Education Board and the Rockefeller Foundation itself, have bought a total of $6,500,000 in bonds.

Other large subscriptions reported included $2,000,000 from the Commonwealth Foundation and $500,000 from the S. R. Guggenheim Fund. Other subscriptions ranged from $5,000 up to $1,000,000.

Scientific research, international health programs, essential charity work, and educational development are dependent upon these funds in the future. Never has a single medium of investment been so heavily utilized by foundation trustees seeking to preserve their capital, Mr. Gibbons and Mr. Monroe pointed out in their report to Mr. Cotter.

A. M. Massie, treasurer of the Commonwealth Fund, with whom other sectional leaders worked in compiling the report, said the total amount of bonds bought throughout the country by scores of foundations will continue to grow without relation to war bond drives. The $40,000,000 figure represents bonds purchased through New York groups or local investment branches of world-wide institutions.

NEW INSULIN TREATMENT

A mixture of two forms of insulin which simplifies treatment of diabetics and gives better control of blood sugar is announced in the *Journal of the American Medical Association.*

Slow-acting protamine zinc insulin, already in use for several years, is mixed with the original type of rapid-acting insulin to make a single daily injection having many of the advantages of both types.

Postgraduate Medical Education

Programs arranged by the Council Committee on Public Health and Education of the Medical Society of the State of New York are published in this section of the JOURNAL. *The members of the committee are Oliver W. H. Mitchell, M.D., Chairman (428 Greenwood Place, Syracuse); George Baehr, M.D.; and Charles D. Post, M.D.*

Cancer Teaching Day in Watertown

A CANCER Teaching Day was held October 14, 1943, at the Black River Valley Club in Watertown under the auspices of the medical societies of the counties of Jefferson, Lewis, and St. Lawrence, the Medical Society of the State of New York, and the Division of Cancer Control of the New York State Department of Health.

At the first meeting, held at 3:30 P.M., Ethan F. Butler, Surgical Consultant of Onondaga Sanatorium in Syracuse, lectured on "Cancer of the Lung" and Walter T. Murphy, radiologist at the State Institute for the Study of Malignant Disease, delivered a lecture entitled "What the Practitioner Should Know About Radiation."

Sutherland E. Simpson, president of the Medical Society of the County of Jefferson, was chairman of this meeting.

A dinner was served at 6:00 P.M.

Frederic R. Calkins, Jefferson County Chairman of the American Society for the Control of Cancer, presided over the evening meeting, which began at 7:30 P.M.

The first lecture was "Significance of Enlarged Lymph Nodes" given by Lloyd F. Craver, attending physician at Memorial Hospital in New York City.

The second speaker was Clyde L. Randall, professor of gynecology at the University of Buffalo School of Medicine, Buffalo. His subject was "The Significance and Management of Abnormal Vaginal Bleeding."

Symposium on Meningococcus Meningitis

A SYMPOSIUM on meningococcus meningitis was held before the Madison County Medical Society on October 21, 1943. The meeting was at 6:30 P.M. at the Hotel Oneida, Oneida, New York.

The speakers were J. Howard Ferguson, professor of pathology at Syracuse University College of Medicine, in Syracuse, and A. Clement Silverman, professor of clinical pediatrics at Syracuse University College of Medicine.

The Medical Society of the State of New York provided this instruction in cooperation with the New York State Department of Health.

Lecture on Prolonged Labor

POSTGRADUATE instruction in obstetrics was provided for the Suffolk County Medical Society by the Medical Society of the State of New York and the State Department of Health.

Harvey B. Mathews, clinical professor of obstetrics and gynecology at Long Island College of Medicine, 643 St. Marks Avenue, Brooklyn, lectured on "Prolonged Labor—Causes and Management." This lecture took place at 12 M., October 27, 1943, at Friede's Inn, Smithtown, Long Island.

History of Medicine

The Session on the History of Medicine of the Medical Society of the State of New York holds annual meetings along with the regular sections of the Society. It has had two very successful meetings, and is preparing for a third in 1944. So far, the policy of the Session has been to confine the subject of the papers presented to material related to the history of medicine in New York State. In this way, a valuable compilation of data related to New York State medicine will be gradually accumulated.

Anyone having material suitable for presentation before this session will kindly communicate with the Chairman, Edward F. Hartung, M.D., at 580 Park Avenue, New York 21, New York.

Medical Legislation

Analysis of the Wagner Health Insurance Bill *Senate 1161*

(Special bulletin issued by the Legislative Bureau of the Medical Society of the State of New York, October 11, 1943.)

OTHER analyses and comments on this bill, which is a document of 90 pages, have appeared from time to time. This is not intended to replace any of them but to supplement. Our object is to direct attention to the provisions that would regulate the practice of medicine both in the office and in the hospital.

Senate 1161 (Wagner-Murray); H.R. 2861 (Dingell), is a bad bill from a public health point of view because, if enacted into law, it would remove control over the practice of medicine from the several states and place it under the *Surgeon General of the Public Health Service;* and, likewise, by giving him authority over hospital service through insurance or otherwise, it would soon give him absolute control over the conduct of all hospitals.

The heart of the bill is contained in Section 1110, page 76, from which we quote:

"The Board, through the *Surgeon General of the Public Health Service*, shall make provision for determination of disability and its redetermination at regular intervals or at specified periods. The Board may refuse to make certification or recertification for any individual claiming benefits in respect to his own disability, or the disability of any other individual, if the disabled individual refuses to submit himself for examination or re-examination. The Board, through the *Surgeon General of the Public Health Service, may make provisions for furnishing medical, surgical, institutional, rehabilitation, or other services to disabled individuals entitled to receive insurance benefits*, if such services may aid in enabling such individuals to return to gainful work. Such services shall be furnished by qualified practitioners and through governmental and nongovernmental hospitals and other institutions qualified to furnish such services. For the purpose of this section there shall be available, for each calendar year beginning with the calendar year 1945, an amount equal to 2 per centum of the total amount expended from the Trust Fund during the preceding fiscal year for the payment of insurance benefits to disabled individuals."

For allotment of funds and administration, authority is vested in the *Surgeon General* of the Public Health Service and a Board composed of the Secretary of the Treasury, the Secretary of Labor, and the Chairman of the Social Security Board, or their representatives. For professional administration, authority is vested entirely in the *Surgeon General*. There is, however, provision for the creation of an Advisory Council, but the Act does not oblige the *Surgeon General* to accept the Council's advice, nor does it provide that the Council may take the initiative. In short, the *Surgeon General* is given almost unlimited authority over every phase of medical service in the entire United States. To carry out his duties he will be obliged to employ an army of statistical clerks and inspectors, in addition to the political administrators that will be proposed by the party in power. The employed personnel will far surpass in numbers that of the Post Office Department.

In Section 904 authority is given the *Surgeon General* to create a National Advisory Medical and Hospital Council of 16 members. They are to be "selected from panels of names submitted by professional and other agencies and organizations concerned with medical services and education and with the operation of hospitals and from among other persons, agencies, or organizations informed on the need for or provision of medical, hospital, or related services and benefits." This is purely an advisory council with no dictatorial authority. It is "authorized to advise the *Surgeon General* with reference to professional matters incident to carrying out the provisions of this Act, including (1) professional standards of quality to apply to general and special medical benefits; (2) designation of specialists; (3) methods and arrangements to stimulate and encourage the attainment of high standards through coordination of the services of general practitioners, specialists, laboratories, and other auxiliary services, and through the coordination of the services of practitioners with those of educational and research institutions, hospitals and health centers, and through other useful means; (4) standards to apply to participating hospitals and the establishment and maintenance of the list of participating hospitals; (5) adequate and suitable methods and arrangements of paying for medical and hospital services; (6) studies and surveys of the services furnished by practitioners and hospitals and of the quality and adequacy of such services; (7) grants-in-aid for professional education and research projects; (8) establishment of special advisory, technical, local, or regional boards, committees, or commissions." With or without the advice of the Council the *Surgeon General* will have complete control over all of the above-named activities.

Some of the administrative duties of the *Surgeon General* are:

Create and conduct a nation-wide medical insurance program.

"Sec. 903. (*a*) Authorized and directed to take all necessary steps to arrange for the availability of the benefits provided under this title and of services and reports required by the Social Security Board in the determination of disability under titles II and VIII of this Act."

Employ hospitals, physicians, nurses, and all others necessary to conduct such national program.

"(*b*) To negotiate and periodically to renegotiate agreements or cooperative working arrangements with appropriate agencies of the United States, or of any State or political subdivisions thereof, and with other appropriate public agencies, and with private agencies or institutions, and with private persons or groups of persons, to utilize their services and facilities and to pay fair, reasonable, and equitable compensation for such services or facilities."

Publish the names of the cooperating physicians.

Sec. 905. "(3) The *Surgeon General* shall *publish* and otherwise make known in each area to individuals entitled to benefit under this title the

names of general practitioners who have agreed to furnish services as benefits under this title and to make such lists of names readily available to individuals entitled to make the selection of a general practitioner."

Define specialists and designate who may practice as specialists.

"(4) Services which shall be deemed to be *specialist services shall be those so designated by the Surgeon General* . . . . as qualified to furnish such specialist services and only with respect to the particular class or classes of specialist services he shall determine for each such specialist, in accordance with general standards previously prescribed by him after consultation with the Council and utilizing standards and certifications developed by competent professional agencies."

"Sec. 906. The *Surgeon General* is authorized to *establish* necessary and sufficient *hearing and appeal bodies* to hear and determine complaints from individuals entitled to benefits under this title, from practitioners who have entered into agreement for the provision of services as benefits under this title, and from participating hospitals."

"Sec. 907. (*a*) The *Surgeon General* shall *publish a list of institutions* found by him to be participating hospitals, and shall from time to time revise such list to include thereon all institutions which he thereafter finds to be participating hospitals and to withdraw therefrom all institutions which he finds cease to meet the requirements of a participating hospital."

Who may practice and how they shall be remunerated is to be determined by the *Surgeon General* as outlined in Section 905:

"(1) *Any physician* legally qualified by a State to furnish any services included as benefits under this title *shall be qualified* to furnish such services . . . . in accordance with such rules and regulations as may be prescribed.

"(2) *Every individual* entitled to receive as a benefit services from a physician *shall be permitted to select*, from among those designated in paragraph (1) of this section, those from whom he shall receive such services, except specialist services.

"(7) *Payments* from the Trust Fund to general medical practitioners, for services under this title, *shall be made* (*A*) on the basis of fees for services rendered . . . . according to a fee *schedule approved by the Surgeon General;* or (*B*) on a per capita basis, the amount being according to the number of individuals entitled to benefit who are on the practitioner's list; or (*C*) on a salary basis, whole time or part time; or (*D*) on a combination or modification of these bases, as the *Surgeon General may approve*, according in each area as the majority of the general medical practitioners to be paid for such services shall elect, subject to such necessary rules and regulations as may be prescribed.

"(8) The *methods of making payments* . . . . to designated specialists . . . . may include payments on salary (whole time or part time), per session, fee-for-service, per capita, or other basis, or combinations thereof.

"(9) *Payments* for particular services or classes of services furnished as benefits under this title *may be nationally uniform* or may be adapted to take account of relevant factors."

Some of the regulations which shall apply to the patient are:

Sec. 905. "(10) The *Surgeon General* may prescribe maximum limits to the number of potential beneficiaries for whom a practitioner may undertake to furnish general medical benefit, and such limits may be nationally uniform or may be adapted to take account of relevant factors, as the *Surgeon General may determine.*

"(11) In any area where payment for the services of a general practitioner is on a per capita basis, *the Surgeon General shall distribute* . . . . on a pro rata basis among the practitioners of the area . . . . those individuals in the area who, after due notice, have failed to select a general practitioner or who having made a selection have been refused by the practitioner.

"(12) In each area the provision of general medical benefit for all individuals entitled to receive such benefit shall be a collective responsibility of all qualified general practitioners in the area who have undertaken to furnish such benefit."

Coinsurance may be provided.

"Sec. 911. (*a*) The *Surgeon General* and Social Security Board may, under joint rules and regulations, determine for any calendar year or part thereof that every individual entitled to general medical benefit may be required by the physician furnishing such benefit to pay a fee with respect to the first service or with respect to each service in a spell of sickness or course of treatment . . . . Such determination may limit the application of such fees to home calls, to office visits, or to both, and may fix the maximum total amount of such fee payments in a spell of sickness or course of treatment, and may also provide for differences in the maximum size of such fees or total amount of such fee payments for urban and rural areas and with regard for differences among States or communities."

The *Surgeon General* is also authorized to limit the cost of laboratory benefit.

In making the rules and regulations for the general administration of the Act, the *Surgeon General* is not obliged to consult with his Advisory Council.

"Sec. 914. *The Surgeon General,* after consultation with the Social Security Board, and with the approval of the Federal Security Administrator, *shall make and publish such rules and regulations,* not inconsistent with other provisions of this Act, as may be necessary to the efficient administration of this title."

Under this Act, the *Surgeon General of the Public Health Service* has almost unlimited authority to provide medical services to all holders of social security cards. For this purpose he may employ every physician, dentist, and nurse. He may take over every hospital and build others if he and his Board agree they are needed. Those who choose to decline the government offer may practice with those who are not possessors of social security cards or who do not prefer to avail themselves of the government program.*

JOHN L. BAUER
WALTER W. MOTT
LEO F. SIMPSON
Committee on Legislation

JOSEPH S. LAWRENCE, *Executive Officer*

*NOTE: All italic in this bulletin is the writers'.

Medical News

Dr. Abraham A. Brill to Give Salmon Lectures

DR. ABRAHAM A. Brill, one of the nation's leading psychoanalysts and an authority on the teachings of Dr. Sigmund Freud, will deliver the Salmon Lectures for 1943 at the Academy of Medicine in New York on three successive Friday evenings—November 5, November 12, and November 19.

The Salmon Committee on Psychiatry and Mental Hygiene, appointed by the Council of the New York Academy of Medicine, which is sponsoring the lectures, has extended an invitation to all members of the medical profession and their friends to attend.

The Salmon Lectures, now in their eleventh year, are delivered annually by an outstanding specialist in the field of psychiatry, neurology, or mental hygiene, either in this country or abroad, who has made the greatest contribution to his specialty during the preceding year.

Dr. Brill, who at one time served as clinical psychiatrist at Austalt Burgholze in Zurich, Switzerland, is now lecturer in psychoanalysis and abnormal psychology at New York University, lecturer in psychoanalysis and psychosexual sciences at Columbia University, and consultant for the Manhattan Hospital in New York.

He is the author of numerous works, many of which are translations into English for the first time of the writings of Freud. Among his writings are: *Psychoanalysis—Its Theories and Practical Application, Fundamental Conceptions of Psychoanalysis, Freud's Selected Papers on Hysteria, Three Contributions to the Theory of Sex, Freud's Interpretations of Dreams, Psychopathology of Everyday Life*, and others.

Dr. Brill is a major in the Medical Reserve of the U.S. Army, a Fellow of the American Psychiatric Association, and a member of the American Psychoanalytic Association, the American Psychopathic Association, and the American Therapeutic Society.

Members of the Salmon Committee on Psychiatry and Mental Hygiene are: Dr. Samuel W. Hamilton, Division of Mental Hygiene, United States Public Health Service, Washington, D.C.; Dr. Adolph Meyer, psychiatrist-in-chief emeritus of the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, Baltimore; Dr. Edward A. Strecker, Department of Psychiatry, University of Pennsylvania Medical School, Philadelphia; Dr. Edwin G. Zabriskie, professor of clinical neurology, Columbia University Medical School, New York City; Dr. C. Charles Burlingame, *chairman*, psychiatrist-in-chief of the Institute of Living, Hartford, Connecticut, and the President and the Director of the New York Academy of Medicine.

American Medical Texts Needed by Russians

VAST public health and rehabilitation problems facing Soviet authorities in the thousands of devastated communities recaptured from the Nazis this year are reflected in an appeal just received by Russian War Relief for more than 200 American textbooks urgently needed in Soviet medical schools and libraries.

Dr. Vladimir V. Lebedenko, noted Soviet neurosurgeon now in the United States on a Red Cross mission, gave the list to Russian War Relief with the plea that the books be collected as quickly as possible to aid in the training of thousands of additional physicians and other personnel needed to handle the enormous postwar job of rehabilitating soldiers and civilians suffering from the terrible impact of this war.

Russian War Relief pointed out that whereas medical textbooks previously requested by Soviet authorities were devoted to problems of military medicine, this new list is much broader in subject matter, ranging from plastic surgery to nutrition. It reflects a growing interest of Soviet health officials in the latest American findings in such fields as the treatment of tuberculosis and pneumonia, dietetics, child psychiatry and play therapy, stomach diseases, war neuroses, occupational therapy, psychology, and mental hygiene. A few works on cattle and insect diseases are also needed.

Dr. Lebedenko told Russian War Relief that these textbooks would be particularly useful at this time, since Soviet medical institutions are training two-and-a-half times as many physicians as before the war, at a time when paper and other material shortages have greatly reduced Russia's own publishing activities.

Gifts of textbooks from American physicians and medical associations have played a part in the training of more than 66,000 doctors in the U.S.S.R. since June, 1941, according to Russian War Relief. Many letters have been received from Soviet physicians and students expressing deep gratitude for the books. The writers particularly mention their pleasure at receiving messages from the donors.

Books to be donated should be sent to Russian War Relief, 11 East 35th Street, New York 16, New York.

The desired medical publications, listed by publishers, are:

Oxford University Press

Mogensen, Erik: The Size of the Red Blood Cells
Rogerson, C. H.: Play Therapy in Childhood (1939)
Gordon, R. G.: A Survey of Child Psychiatry (1939)
Moon, Virgil H.: Shock and Related Capillary Phenomena (1938)
Lanza, A. J. (Ed.): Silicosis and Asbestosis (1938)
Elmer, A. W.: Iodine Metabolism and Thyroid Function (1939)
Drinker, Cecil K.: Carbon Monoxide Asphyxia (1938)
Alsted, Gunner: Studies on the Changing Incidence of Peptic Ulcer of the Stomach and Duodenum (1939)
Jorpes, J. Erik: Heparin: Its Chemistry, Physiology and Application in Medicine (1939)
Ihre, Bengt J. E.: Human Gastric Secretion (1939)
Ker, Frank L.: Ker's Man[illegible] Diseases
Samuels, Saul S.: The Dia[illegible] of the Peripheral Arteries (1940)
Christian, Henry A.: Diagnosis and Treatment of Diseases of the Heart (1940)
Russell, Dorothy S.: Histological Technique for Intracranial Tumours (1939)
Fulton, John F.: Physiology of the Nervous System
Monroe, Robert T.: Chronic Arthritis (1939)
Crowe, H. Warren: Handbook of the Vaccine Treatment of Chronic Rheumatic Diseases (1939)
Girdlestone, G. R.: Tuberculosis of Bone and Joint (1939)

Macmillan Company

Green, David E.: Mechanisms of Biological Oxidations (1941)
Kolle, Dr. W.: Experimental Bacteriology (1935), 2 vols.
Bodansky, Meyer: Biochemistry of Disease (1940)
Merritt, Arthur H.: Periodontal Diseases (1939)

McCollum, E. V.: The Newer Knowledge of Nutrition (1939)
Bourne, Geoffrey: Nutrition and the War (1940)
Sherman, Henry C.: Chemistry of Food and Nutrition (1941)
Jackson, Chevalier: Diseases and Injuries of the Larynx (1942)
Smillie, Wilson G.: Public Health Administration in the United States (1940)
Charters, Smiley, Strang: New Health and Growth Series
Introduction to Public Health (1935)
n (1942)
-Subpleural Zone (1942)
Cameron, D. Ewen: Objective and Experimental Psychiatry (1941)
Bradley, Charles: Schizophrenia in Childhood (1941)
Menkin, Valy: Dynamics of Inflammation. An Inquiry into the Mechanism of Infectious Processes (1940)
Goodman, Louis, and Gilman, Alfred: The Pharmacological Basis of Therapeutics (1941)

Paul Hoeber, Inc.

Pardee, Harold E. B.: Clinical Aspects of the Electrocardiogram Including the C
Dressler, William: Cli
Bercovitz, Zacharias Tropical Medicine (1942)
Harris, Harold J.: Brucellosis (Undulant Fever) (1941)
Davidson, L. S. P.: A Textbook of Dietetics (1941)
Price, Weston A.: Nutrition and Physical Degeneration (1939)
Cohen, Milton B.: A Manual of Allergy (1941)
Terry, Gladys C.: Fever and Psychoses (1939)
Lennox, William G.: Science and Seizures (1941)
Macleod, J. M. H.: Practical Handbook of the Pathology of the Skin (1940)
Geist, Samuel H.: Ovarian Tumors (1942)
Pack and Livingston (Eds.): Treatment of Cancer and Allied Diseases (1940),3 vols.
Lasher, Willis W.: Industrial Surgery: Principles, Problems and Practice (1942)
Trueta, J.: Treatment of War Wounds and Fractures (1940)
Jolly, Douglas W.: Field Surgery in Total War (1941)
Elsberg, Charles A.: Surgical Diseases of the Spinal Cord: Membranes and Nerve Roots (1941)
Sherrington, Sir Charles: Selected Writings (1941)
Kardiner, Abram: Traumatic Neuroses of War (1941)
Henry, George W.: Sex Variants, a Study of Homosexual Patterns (1941)
Landis, Carney: Sex in Development (1940)
Ridley, Frederick (Ed.): Modern Trends in Ophthalmology (1940)

Interscience Publishers, Inc.

Jacobs, Morris B.: The Analytical Chemistry of Industrial Poisons, Hazards and Solvents (1941)
Jacobs, Morris B.: War Gases: Their Identification and Decontamination (1942)
Rosenberg, H. R.: Chemistry and Physiology of the Vitamins (1942)
Boyd, Dr. William C.: (1942)
Gellhorn, Ernst: Auton
Schiff, Fritz, and Boyd, echnic (1942)
Steele, J. Murray (Ed.): Advances in Internal Medicine (1942)
Ellinger, Dr. Friedrich: Biologic Fundamentals of Radiation Therapy (1941)
Snapper, I. M.: Medical Aspects of Bone Diseases (1942)
De Sanctis, Adolph G. (Ed.): Advances in Pediatrics (1942)
Dahlberg, Gunnar: Statistical Methods for Medical and Biological Students (1940)

Chemical Publishing Co.

Beard, Howard H.: Creatine and Creatinine Metabolism (1942)
Military Manual: Medical Diseases in Tropical and Sub-Tropical Areas (1942)
Medical Manual of Chemical Warfare (1942)
Alstead, Stanley: Pharmacology and Therapeutics (1941)
Cinberg, Bernard L.: Manual of Endocrine Therapy (1942)
Nosworthy, M. D.: The Theory and Practice of Anaesthesia (1940)
Harvey, Wm. Clunie, and Hill, Harry: Insect Pests (1941)

Charles C Thomas Co.

Adriani, John: The Pharmacology of Anesthetic Drugs (1942)
Alexander, John: The Collapse Therapy of Pulmonary Tuberculosis (1937)
Bailey, Percival: Intracranial Tumors (1933)
Blanton, Wyndham B.: A Handbook of Allergy for Students and Practitioners (1942)
Boyce, Frederick Fitzherbert: The Role of the Liver in Surgery (1941)
Bradford, F. Keith: The Intervertebral Disc (1941)
Caldwell, John A.: A Manual of the Treatment of Fractures (1941)
Harvey Cushing Society—A Bibliography of the Writings of Harvey Cushing (1940)
Dayton, Neil A.: New Facts on Mental Disorders (1939)
Ellis, John D.: The Injured Back and Its Treatment (1940)
Freeman, Walter: Psychosurgery (1942)
Hamblen, E. C.: Endocrine Gynecology (1939)
Harkins, Henry N.: The Treatment of Burns (1942)
Hawley, Estelle E.: The Fundamentals of Nutrition
Hitchcock, David I.: Physical Chemistry for Students of Biology and Medicine (1940)
Hoff, E. C.: A Bibliography of Aviation Medicine (1942)
Hueper, W. C.: Occupational Tumors and Allied Diseases (1942)
Hull, Thomas G.: Diseases Transmitted from Animals to Man (1941)
Joachim, Henry: Practical Bedside Diagnosis and Treatment (1940)
Kanner, Leo: Child Psychiatry (1942)
Kopeloff, Nicholas: Bacteriology in Neuropsychiatry (1941)
Lewis, G. Griffin: The Ophthalmic Formulary (1942)
Mackenzie: Rural Medicine (1939)
Macy, Icie G.: Nutrition and Chemical Growth in Childhood (1943)
McNeill, Clyde: Roentgen Technique (1941)
Miller, William Snow: The Lung (1940)
Mills, Clarence A.: Medical Climatology (1939)
Moore, Joseph Earle: The Modern Treatment of Syphilis (1941)
Mudd, Stuart: Blood Substitutes and Blood Transfusion (1942)
Myers, J. Arthur: Man's Greatest Victory Over Tuberculosis (1940)
Myers, J. Arthur: Tuberculosis Among Children and Young Adults (1942)
Myerson, M. C.: Tuberculosis of the Ear, Nose and Throat (1942)
Nash, Joseph: Surgical Physiology (1942)
Nye, Robert N.: Medical Progress (1942)
Orr, Winnett: Wounds and Fractures(1941)
Padgett, Earl Calvin: Skin Grafting (1942)
Pancoast, Henry K.: The Head and Neck in Roentgen Diagnosis (1940)
Pardo-Castello, V.: Diseases of the Nails (1941)
Pearse, A. S.: Introduction to Parasitology (1942)
Penfield, Wilder: Epilepsy and Cerebral Localization (1941)
Quick, Armand: The Hemorrhagic Diseases and the Physiology of Hemostasis (1942)
Rankin, Fred W.: Cancer of the Colon and Rectum (1939)
Reed, Jewett V.: The Essentials of Occupational Diseases (1941)
Roesler, Hugo: Clinical Roentgenology of the Cardiovascular System (1942)
Roesler, Hugo: Atlas (1940)
Ruch, Theodore C.: (1941)
Schmidt, Carl L. A.: and Proteins (1942)
Snow, William: Clinical Roentgenology of Pregnancy (1942)
Steindler, Arthur: Orthopedic Operations: Indications, Technique and End Results (1940)
Streicher, M. H.: Proctoscopic Examination and Diagnosis and Treatment of Diarrheas (1940)
Sulzberger, Marion B.: Dermatologic Allergy (1940)
Sweany, Henry C.: Age Morphology of Primary Tubercles (1941)
Thorek, Max: Plastic Surgery of the Breast and Abdominal Wall (1942)
Vinson, Porter: The Diagnosis and Treatment of Diseases of the Esophagus (1940)
Wangensteen, Owen H.: Intestinal Obstructions (1942)
Weyl, Charles: Radiologic Physics (1941)
Wiener, Alexander: Blood Groups, Transfusions, and Plasma (1942)

Science Press

Parker, George H. (Chairman): Physical and Chemical Changes in Nerve During Activity (1933)
Moulton, Forest Ray (Ed.): Mental Health (1938)
Moulton, Forest Ray (Ed.): Gonococcus and Gonococcal Infection (1939)

Miscellaneous

Taylor, F. Sherwood: The Conquest of Bacteria (Philosophical Library)
Malisoff, William Ma of Biochemistry
"A Critical Dictio of Biochemistry, 15 East osophical Library)
Pugh, Winfield Scott:

Commonwealth Fund

Howe, Howard A.: Neural Mechanisms in Poliomyelitis
Wilson, May G.: Rheumatic Fever
Moodie, William: The Doctor and the Difficult Child
Muller, Gulli Lindh: Clinical Significance of the Blood in Tuberculosis
Julianelle, Louis A.: The Etiology of Trachoma
Lord, Frederick T., Robinson, and Heffron: Chemotherapy and Serum Therapy of Pneumonia

Heffron, Roderick: Pneumonia, with Special Reference to Pneumococcus Lobar Pneumonia
White, Benjamin, Robinson, and Barnes. The Biology of Pneumococcus
Heddleson, Forest I.: Brucellosis in Man and Animals
Jensen, Hans: Insulin: Its Chemistry and Physiology
Hooker, Ransom S.: Maternal Mortality in New York City
Curran, Jean Alonzo: Internships and Residencies in New York City, 1934–37
Weisenburg, Theodore: Aphasia
Walker, W. F. and Randolph: School Health Services
Tobey, James A.: Public Health Law
Smith, Geddes: Plague on Us
Maxcy (Ed.): Papers of Wade Hampton Frost
Herms, William Brodbeck: Mosquito Control
French, Lois Meredith: Psychiatric Social Work
Witmer, Helen Leland: Psychiatric Clinics for Children
Healy, William: Criminal Youth and the Borstal System
Ryan, W. Carson: Mental Health Through Education
Crothers, Bronson: A Pediatrician in Search of Mental Hygiene
O'Hara, Dwight: Observations on Air-borne Infection and Preventive Medicine
Papnicolaou, George, and Traut: The Vaginal Smear as an Aid in the Diagnosis of Cancer of the Uterus
Bennett, Granville, and Waine: Changes in the Knee Joint at Various Ages
Wilson, May G.: Rheumatic Fever
Richardson, and Snow, John: Snow on Cholera

Williams & Wilkins Co.

Jones, Frederic Wood: The Principles of Anatomy as Seen in the Hand
Gladstone, Reginald J.: The Pineal Organ
Pickles, William Norman: Epidemiology in County Practice
Mathews, Albert P.: Physiological Chemistry
Peters, John P.: Quantitative Clinical Chemistry
Cade, Stanford: Malignant Disease and Its Treatment by Radium
Eddy, Walter H.: The Avitaminoses
Hutchison's Food and Dietetics, revised by Mottram
Zondek, Bernhard: Genital Functions
Van Alyea: Nasal Sinuses
Cahn, Lester Richard: Pathology of the Oral Cavity
Frazer, W. M.: Textbook of Public Health
Collier, Howard: Outlines of Industrial Medical Practice
Maher, Chauncey C.: Electrocardiography
Kahn, Reuben L.: Serology in Syphilis Control
Brenton, Denis: Cerebrospinal Fever
Copeman, W. S. C.: Treatment of Rheumatism
Manson-Bahr, Philip: The Dysenteric Disorders (1939)
Wilson, Kinnier: Neurology: (1940), 2 vols.
Fulton, M. John F. (Ed.): The Hypothalamus (1940)
Putnam, Tracy J.: Diseases of the Basal Ganglia (1942)
Watson-Jones: Fractures and Other Bone and Joint Injuries
Brittain, H. A.: Architectural Principles in Arthrodesis
Parsons, Thomas: Fundamentals of Biochemistry (1939)
Haworth, Norah: Theory of Occupational Therapy
Hill, Horace: Histamine and Insulin Treatment of Schizophrenia, etc. (1940)
Brown, William: Psychology and Psychotherapy (1940)
Wechsler, David: The Measurement of Adult Intelligence
Robbins, Benjamin Howard: Cyclopropane Anesthesia (1940)
Fomon, Samuel: The Surgery of Injury and Plastic Repair (1939)
Handfield-Jones: Surgery of the Hand (1940)
Nicholls, T. B.: Army Medical Services (1940)
Armstrong, Harr G.: Principles and Practices of Aviation Medicine
Fletcher, E. (Ed.): War Wounds and Injuries (1940)
Ross, T. A.: Lectures on War Neuroses (1941)
Bailey, Hamilton: Surgery of Modern Warfare (1941)

County News

Columbia County

The annual meeting of the Columbia County Medical Society was held on October 5, at 7:00 P.M. at the Hotel General Worth in Judson. Dr. Frederick R. Thompson, assistant orthopaedic surgeon at St. Luke's Hospital, New York City was guest speaker. His topic was "Low Back Pain."*

Dutchess County

A regular meeting of the county society was held in the Golf House of the Hudson River State Hospital in Poughkeepsie on October 13.

The scientific program was given by Dr. Rudolf T. Kempton, professor of zoology at Vassar College. His subject was "Physiology of the Kidneys."

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Dr. Edgar F. Powell, of Fishkill, who was twice cited for "bravery and valorous conduct" in the battle of the Argonne Forest in the First World War, has been awarded the Silver Star medal by the War Department.

Dr. Powell was a sergeant in Company L, 307th Infantry, 77th Division, in the First World War. He was cited by General John Pershing on June 3, 1919, for "gallantry" on October 4, 1918, and also cited by Maj. Gen. Robert Alexander for "valorous conduct and distinguished and splendid courage, service, and sacrifice."

The Silver Star awarded is next to the highest honor that can be bestowed upon American heroes. On October 4, 1918, after all high-ranking officers of his company had been killed or wounded in the battle of the Argonne Forest, Sergeant Powell assumed command and reorganized the company and "brilliantly led the company forward."

Dr. Powell is also the holder of a Purple Heart, which he received several years ago from the War Department.*

* Asterisk indicates that item is from local newspaper.

Erie County

The Buffalo Academy of Medicine's first stated meeting of the season was held in the Hotel Statler on October 13.

Dr. Robert A. Hingson and Dr. Waldo B. Edwards, of the U.S. Public Health Service, spoke on "Caudal Anesthesia in Obstetrics," a new technic for painless childbirth recently introduced by them. The lecture was illustrated with motion pictures in technicolor. Dr. Edward Winkler opened the discussion.

The next meeting of the Academy will be held on November 10.

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Fred L. Heitzmann, county commissioner of charities and corrections, has announced the appointment of Dr. Charles H. Schnitter of Cox Road, Grand Island, as resident physician at the home and infirmary at Wende. Dr. Schnitter succeeds Dr. Ralph M. Colton, who recently resigned.

• • •

A visit by Maj. Gen. James C. Magee, who has just completed his term as Surgeon General of the Army, was the main feature of the twenty-third annual session of the University of Buffalo Medical School's postgraduate course for practitioners, which was held the last week in September.

General Magee, who is touring medical schools of the country, spoke on "Military Medicine and Tropical Diseases."

A member of the National Research Council and the American Foundation for Tropical Medicine, General Magee has served in the Philippine Islands and was with the A.E.F. Having recently returned from American camps in England and North Africa, he was able to discuss the situation confronting Army medical officers.

The postgraduate course included classroom ses-

sions and clinics in the medical school and the General, Children's, and Meyer Memorial hospitals.*

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"One of the most amazing recent advances in the treatment of arthritis is the relief of pain through the use of deep x-ray treatment for certain types of spinal arthritis." Dr. L. Maxwell Lockie said at the fall meeting of the western New York chapter of the American Physiotherapy Association, which was held at the Westbrook on September 25.

Dr. Lockie, who is professor of therapeutics at the University of Buffalo Medical School and a staff member of the Buffalo General and Children's Hospitals, explained that heretofore spinal arthritis had been almost impossible to treat.

"The x-ray treatment relieves pain and that eases the muscle spasm, which enables patients to assume better posture," he said.

"Since the American Rheumatism Association convention eighteen months ago, a definite classification of the arthritic disease has been adopted both in the United States and England, causing many synonymous and confusing terms to be discarded.

"With the disease definitely typed, a wider use of gold salts in the treatment of rheumatoid arthritis has been possible. A degree of safety in their use has been reached, enabling all general practitioners to use this treatment when the disease is first discovered before the crippling stage is reached.

"Many arthritis patients develop poor posture and when the disease burns out, sometimes in only a few years, they are unable to resume their normal work. As one of your duties in carrying out the physician's instructions, you should see that the patient's posture is maintained."*

• • •

Dr. Burton T. Simpson, director of the State Institute for the Study of Malignant Diseases at Buffalo and widely known as an authority on cancer, retired on August 1.

Doctor Simpson has been in the service of the state since 1910, first as a resident pathologist at the Institute and, since 1923, as its director. In 1931, he was appointed director of the newly created Division of Cancer Control, combining the duties of that position with those of the administration of the Institute. He continued in that capacity until 1939 when the Division was reorganized, and its headquarters transferred to Albany, primarily for the purpose of amplifying the resources available to practicing physicians throughout the state for the diagnosis and care of cancer. Since then he has devoted his full time to administering the constantly increasing activities of the Institute.

His regime was coincident with many progressive developments, including the inauguration of free pathologic services to physicians throughout the state; an addition, in 1927, to the hospital associated with the Institute; the acquisition of approximately eight grams of radium, constituting one of the largest supplies available in any single place for the treatment of cancer; and the construction of a new laboratory at the Biological Station at Springville. —*Health News*

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Four months ago the Buffalo and Erie County Tuberculosis Association undertook a mass x-ray demonstration on which the association is now prepared to announce results.

This was the first attempt at a wide ranging drive to make the public aware of the dangers and responsibilities of tuberculosis.

Of the 1,659 people x-rayed, on which reports have been completed, six new cases of pulmonary tuberculosis were found. From these figures the conclusion drawn is that approximately 1,400 people in Buffalo have active tuberculosis and do not know it. Other unsuspected conditions were diagnosed through this mass x-ray and referred to the family physicians or clinics.

These x-rays were made at no cost to the patients, though the association received $936 in volunteer contributions, but the great cost of the survey was defrayed by the sale of the Christmas seals.

The x-rays were taken at six centers. The Powers rapid x-ray unit was easily moved from center to center and the process totaled less than ten minutes per patient. The findings were divided into three groups: (1) "immediate examination," (2) "re-examine early," (3) no clinical significance." Reports were sent to the family physician and letters to the individuals in the first and second classification, advising them to see their doctor for the report which had been sent to him. Letters were sent to persons with findings of no clinical significance advising them that there was nothing in the x-ray film that need worry them, with the suggestion, "see your physician at the first sign of illness, and every year, on or near your birthday, have a complete examination, including an x-ray of your chest."

Including a group of people x-rayed at the Erie County Shelter, the 1,852 studied are almost evenly divided between 939 men and 913 women. These have been classified as to age, marital status, occupation, race, and to the source by which they learned of this city-wide analysis. By far the largest source of information was the press, which furthered this campaign by all means in its power.

The agencies cooperating with the Tuberculosis Association were the Medical Society of Erie County, the Visiting Nurses' Association, the Buffalo Foundation, the Family Service Society, the Catholic Charities, the Jewish Community Center, the Erie County Department of Social Welfare, the Salvation Army, the Women's Division of Negro Health Week, the Central Council of Polish Organizations and Societies, Inc., and the Medical Alliance of Buffalo and Western New York.

The reading of the films was done three evenings a week under the leadership of Dr. Albert H. Garvin, president of the Association; Dr. Nelson G. Russell; and Dr. A. H. Aaron, chairman of the mass x-ray committee. The following roentgenologists and physicians gave valuable time and assistance: Herbert H. Bauckus, Harold F. R. Brown, John M. Chapman, Archibald S. Dean, J. Herbert Donnelly, Edward C. Koenig, Horace LoGrasso, Horace A. LoGrasso, Jr., Donald R. McKay, Miller H. Schuck, A. W. Thompson, C. G. Weig, Helen G. Walker, Commissioner F. E. Fronczak, and Maj. I. A. Schiller.

Aside from the extremely valuable service rendered to the individuals, the city at large has cause to be appreciative to the association and to the doctors. Each case of tuberculosis costs the city from $5,000 to $10,000. The hospital bed alone costs $1,000 a year and the average tubercular patient spends three years in bed. Add to that the treatment, medical supplies, and doctors' care and

there is a total of about $1,000,000 spent each year by the city and county on the tuberculosis patients. —*Buffalo Courier-Express*

. . .

A public program celebrating the four-hundredth anniversary of the publication of *De Humani Corporis Fabrica* (The Fabric of the Human Body) by Andreas Vesalius was a feature of the eighty-second annual meeting of the Buffalo Society of Natural Sciences in the Museum of Science, which was held in Erie on October 8.

Dr. Kornel L. Terplan, professor of pathology at the University of Buffalo School of Medicine, spoke on the life and work of the Belgian physician whose revolutionary book, published in Basel, Switzerland, in 1543, was the foundation of modern anatomy. Cosponsors of the program were the Buffalo Academy of Medicine, the Erie County Medical Society, the Health Department, and the University of Buffalo School of Medicine. The talk was illustrated with lantern slides.

On display was a copy of the first edition of the "Fabrica" from the Museum's collection of *Milestones of Science.**

Franklin County

The memory of Dr. Edward Livingston Trudeau was honored on October 5 at Trudeau Sanatorium, the institution he founded in his fight against tuberculosis. Six physicians from South and Central America laid a wreath at his monument. The occasion was the one-hundredth anniversary of Dr. Trudeau's birth.

The ceremony was attended by members of the Sanatorium staff, the teaching staff at Trudeau School of Tuberculosis and patients at the institution.

Talks were given by Dr. Luis M. Barriero, of Argentina; Dr. J. Alvarex de la Cardena, of Mexico; Dr. A. C. Mallorquin, of Paraguay; Dr. Raul Soules Baldo, of Venezuela, Dr. Jose Valiente, of San Salvadore, and Dr. Benjamin Viel, of Chile. The physicians are also students at the Trudeau School of Tuberculosis now in session.*

Fulton County

Dr. John A. Shannon, of Gloversville, who was recently discharged from the U.S. Army with the rank of captain, because of physical disability, has resumed practice in that city.*

Herkimer County

The village of Old Forge, Herkimer County, has just provided quarters in a municipal building for the Old Forge Hay Fever Club. The new meeting place offers recreational facilities and a program of social diversions.

The club was organized several years ago by a number of hay fever victims who came to Old Forge for relief from the effects of ragweed pollen. It offers help to hay fever sufferers from any part of the United States. Membership is free to any visitor having hay fever and there are no dues. Membership is also free to friends or relatives who accompany hay fever patients to Old Forge or vicinity. —*Health News*

Kings County

A stated meeting of the county society was held on October 19 at the Brooklyn Academy of Medicine.

The scientific program consisted of a "Symposium on Russian War Medicine" and a motion picture entitled "Revival of a Dog."

The symposium was led by the Russian physician Dr. A. Lebendko of the U.S.S.R. Red Cross, who has the title "Chief Assistant to Surgeons," U.S.S.R. Army. The movie was produced by the Institute of Experimental Physiology and Therapy of the U.S.S.R.

. . .

For a fundamental attack on the problem of mental illness, the Long Island College of Medicine has received a six-year grant from the Commonwealth Fund to establish a research project to improve the psychiatric education of medical students by stressing early recognition and treatment in general practice.

The grant will make it possible for the college to place the teaching of psychiatry under a full-time director with a staff of twenty psychiatrists, social workers, and student aides.

Dr. Howard W. Potter, who came to the Brooklyn institution in 1939 from Columbia University, where he was clinical professor of psychiatry, will head the new division of psychiatry in the college's department of neurology and psychiatry. In the faculty nominations for the current year Dr. Potter was appointed professor of clinical psychiatry.

Dr. Potter is medical supervisor of the Port of New York area for the War Shipping Administration and United Seamen's Service, Inc. In this capacity he is director of the rest-home program for seamen rescued from convoys attacked by German submarines.

The Commonwealth Fund grant will average about $20,000,000 for the next three years, Dr. Jean A. Curran, president of the medical school, stated. The grant will diminish after the third year and at the end of the six-year period the College will take over full financial responsibility.

Six years ago, through a grant from the Commonwealth Fund, the College was able to establish its present Department of Preventive Medicine and Community Health, in order among other things to give adequate emphasis to these emotional factors in the care of patients. Subsequently, through a grant made by the United Hospital Fund to the Long Island College Hospital, it has been possible to establish a modern, well-staffed, Social Service Department, which has cooperated fully with the College in teaching medical students the social and environmental components which play such an important part in the causes of ill health.—*Brooklyn Citizen.*

Monroe County

Members of the county society were invited to attend a scientific session at the U.S. Naval Hospital in Sampson, on October 14.

The invitation came through Capt. C. W. Carr, M.C., U.S.N., medical officer in charge of the great modern hospital.

. . .

On Tuesday, October 19, "The Doctor in Court" was the subject of a panel discussion at a meeting of Rochester Academy of Medicine. The moderator was Dr. James M. Flynn and the panel representing the Rochester Bar Association included Eugene VanVoorhis, H. Douglass VanDuser, T. Carl Nixon, George J. Skivington, and Paul Folger. The panel

representing the medical profession included Drs. Albert C. Snell, Floyd S. Winslow, Ralph R. Fitch, Leo F. Simpson, and John L. VanDeMark.*

New York County

Lt. Colonel William F. MacFee is vice-president of the recently organized American Medical Society of the European Theatre of Operations.

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Dr. Clarence G. Bandler has been appointed to the faculty of Columbia University for the academic year 1943–1944 as professor of clinical urology.

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The meeting of the Clinical Section on Chronic Pulmonary Diseases, Tuberculosis Sanatorium Conference of Metropolitan New York, scheduled for November 3 at Cornell University Medical College, has been canceled.

• • •

Tau Chapter of Nu Sigma Nu presented its annual Walter L. Niles Memorial Lecture this year on Tuesday, October 19, at 8:00 P.M. in the auditorium of the Cornell University Medical College. The speaker was Dr. Edward A. Strecker, professor of psychiatry at the University of Pennsylvania and consultant to the Army, the Navy, and the Air Forces on psychiatric problems. He spoke on "The Neuropsychiatry of Global War."

The lecture is given each year in memory of Dr. Walter L. Niles, a former dean of the Medical College and for many years professor of clinical medicine at Cornell. It is open to the public.

• • •

Bernard M. Baruch, New York financier, has announced that he will give his time and some of his means to the establishment of an institution devoted exclusively to the study and teaching of physiotherapy.

The plan, which the financier has had in mind for several years because of a deep personal interest in the subject, will be translated into reality now because of the growing importance of physical therapy in the treating of war wounded.

A committee of distinguished specialists, headed by Dr. Ray Lyman Wilbur, chancelor of Leland Stanford University, will survey the field of physiotherapy and advise with him on the project.

The Committee's recommendations will determine the manner in which Mr. Baruch is to proceed.

Mr. Baruch said that his interest in the subject was imbued in him by his father, the late Dr. Simon Baruch, who was one of the world's foremost authorities on hydrotherapy, a branch of physiotherapy.

Just what form the institution might take—whether it should be an entirely new organization or whether it should be established in conjunction with some existing organization—is one of the matters to be determined by the committee, which will have $25,000 at its disposal for the study alone.

Dr. W. T. Sangar, president of the Medical College of Virginia, from which the financier's father was graduated in 1862, later to become a surgeon in the Confederate Army, will be chairman of the committee. Serving with him and Dr. Wilbur will be Lt. Col. Benjamin A. Strickland. Jr., Army Medical Corps, stationed at Davis Monthan Field, Tucson, Arizona; Dr. Charles F. Behrens, head of the x-ray department at the Naval Medical Center, Bethesda, Maryland; Dr. Carl R. Comstock, of Saratoga Springs, New York; Dr. John Coulter, medical director of the Physical Therapy School, Northwestern University Medical School, Evanston, Illinois; Dr. Kristian G. Hansson, medical director of the Physical Therapy School at the Hospital for Special Surgery in New York City; and Dr. Frank Krusen, medical director of the Mayo Clinic Department and School of Physical Therapy, Rochester, Minnesota.

Dr. Walter Belknap James, who died in 1927, after a long association with Dr. Baruch on the faculty of the College of Physicians and Surgeons, Columbia University, "suggested a school for physiotherapy to be established which, after study would cull the best from hydrotherapy, balneology (the science of therapeutic use, external and internal, of natural mineral waters), sun, heat, cold electricity, air, and Swedish therapy, massage chiropractics, osteopathy, exercise, and allied curative means.

Mr. Baruch has been in close touch with the subject of physiotherapy. By appointment first of former Governor Alfred E. Smith and later of Franklin D. Roosevelt, when he was Governor, Mr. Baruch was chairman of the Saratoga Springs commission, which developed Saratoga Springs into an internationally famous spa. As chairman of the commission, he made a study of all the world's baths and spas.*

Oneida County

The October meeting of the county society, held at Rhoads General Hospital in Utica on October 12, featured a program by the professional staff of the Hospital, under the supervision of Lt. Col. James T. Priestly. Those who attended were entertained at dinner by Col. A. J. Canning.

• • •

Capt. J. R. Brown, member of the Mayo Clinic Unit of Rhoads General Hospital, spoke on "Functions of the Cerebellum" at the meeting of the Utica Academy of Medicine on October 21. Discussion of the paper was opened by Dr. William W. Wright.

Ontario County

The fourth quarterly meeting of the county society was held at the U.S. Naval Hospital, Sampson Naval Base, Sampson, New York, on October 14.

The program was in two sections. From 2:00 to 4:00 P.M. a series of scientific papers was presented by members of the Medical Staff of the Naval Station. At 4:00 P.M. there was a tour of the Naval Station and Hospital, followed by dinner and a business meeting, at which election of officers was held. The names of the new officers will appear in a later issue.

• • •

Dr. A. W. Armstrong was host to the Canandaigua Medical Society on October 7, when Dr. E. C. Merrill read a paper.*

Putnam County

Dr. Paul Hoch addressed the County Society on "Progress in Psychiatry—War Neurosis," on October 6.

Queens County

At a joint meeting of the county society and the Queensboro Tuberculosis and Health Association held on September 28, a "Symposium on Industrial Medicine" was presented. The interests of the employee, management, and the practicing physician as they relate to medicine in industry were emphasized by the speakers.

Taking part in the program were Dr. James R. Reuling, Jr., president of the Queensboro Tuberculosis and Health Association; Dr. C. D. Selby, medical director of General Motors Corporation; Louis Hollander, president of the New York State Industrial Union Council and manager of the New York Joint Board of Amalgamated Clothing Workers of America; Dr. Leonard Greenburg, executive director of the Division of Industrial Hygiene of the State Labor Department; Dr. N. Millman, assistant surgeon of the U.S. Public Health Service; and W. P. Jacobs, president of the General Bronze Corporation and vice-president of the National Association of Manufacturers' Committee on Industrial Health.

The discussion of the symposium was opened by Dr. Ernest L. Stebbins, Commissioner of Health of the City of New York.

Preceding the meeting, dinner was served at the Forest Hills Inn.

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The speaker for Friday Afternoon Lecture on October 15 was Martin Jungmann, M.D., who gave an address on "Pathomechanics of Chronic Fatigue and Its Proper Therapy."

Schenectady County

The regular monthly meeting of the county society was held in the Ellis Hospital Nurses' Home Auditorium on October 5 at 8:30 P.M.

The speaker was Dr. Maurice Bruger, director of the Pathological and Physiological Department of the Post-Graduate Medical School, New York City, and also associate professor of medicine, Columbia Medical School. The title of his paper was "Clinical and Chemical Aspects of Some Common Metabolic Disorders."

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Dr. Hendrik M. Rozendaal, Schenectady physician serving as a major with the 33rd General Hospital Unit overseas, was injured recently while assisting in the construction of an air raid shelter.

Dr. Rozendaal was confined to a hospital for two weeks with a back injury caused by a strain but has since returned to duty.*

Schuyler County

The Medical Society of the County of Schuyler elected the following officers at a meeting on September 8: president—Dr. William C. Stewart, of Watkins Glen; vice-president—Dr. Arthur H. Jackson, of Watkins Glen; secretary and treasurer—Dr. Christian W. Schmidt, of Burdett.

Suffolk County

The *News Letter* of the Suffolk County Medical Society for September was dedicated to members who had completed a half century in the practice of medicine and who participated in a celebration in July. The members who were honored include Drs. William Newton Barnhardt, Toronto, Ontario; George Herbert Carter, Huntington; William Elliott Foster, Babylon; Frank Diah Peterson, Cutchogue, and Frank Overton, Patchogue.

• • •

Several Long Island newspapers recently carried the following item:

"It is noted that the Suffolk County Medical Society has just completed 137 years of effort and service in the interest of health. Among its outstanding accomplishments have been the sponsorship of the county's Department of Health and the tuberculosis sanitarium."

• • •

Dr. William Mayer, of Amityville, clinical director at the Long Island Home, has gone to New York City to open a private practice in nervous and mental disorders.*

Westchester County

The Westchester Cancer Committee is presenting a course of practical teaching lectures on the "Biology of Cancer" for the benefit of biology teachers in public and private schools and colleges throughout Westchester County.

The course, which began in the latter part of October, will consist of four to six lectures, to be presented by Dr. C. R. Halter, assistant biologist at Memorial Hospital and Cancer Research worker at Boyce Thompson Institute. The lectures will be given on Saturday mornings in New York City.

The teaching course represents a logical follow-up in the Westchester Cancer Committee's program of cancer education through the schools. The first major step in this program was the development and distribution of the text "Youth Looks at Cancer" and a small pamphlet entitled "Detective Wanted," both of which have been widely distributed through the schools in Westchester. These publications have also attracted nation-wide attention and are being used in many other parts of the country in teaching fundamental cancer information to youth groups of all kinds.

This program has been planned by the Research Council of the Westchester Cancer Committee, under the chairmanship of Dr. Gilbert Dalldorf. The other members of the Council are Dr. Margaret Loder and Dr. James Denton.

• • •

A campaign for vaccination against smallpox as a wartime protective measure has been announced jointly by the Westchester County War Council and the Westchester County Medical Society. The vaccination program will serve as a curtain-raiser in a year-round "Community Health Program" embracing six timely health subjects, each to be emphasized for a period of two months.*

Wyoming County

Dr. Benjamin J. Slater, Associate Medical Director of Eastman Kodak Company, was the speaker for the twenty-second annual meeting of the Wyoming County Committee on Tuberculosis and Public Health, which was held on October 5 at 8:00 P.M. in the Historical Society Building, in Warsaw.

Dr. Slater is a past-president of the Seventh

District Branch of the State Medical Society. He served with the American Ambulance Hospital in France during the First World War.

An unusual feature of the meeting was the first public appearance of the "T. B. Blues" composed by Mrs. Irene Lound Gossin, Warsaw high school music teacher, which was sung by high-school students.*

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Charles Adler	68	Univ. & Bell.	September 11	Bronx
George H. Bell	77	Virginia	October 5	Manhattan
Leo Buerger	64	P. & S., N.Y.	October 6	Manhattan
John H. Busch	81	P. & S., Baltimore	May 29	Binghamton
John B. Byrne	37	P. & S., N.Y.	August 30	Nyack
Robert G. Carlin	65	Jefferson	October 3	Manhattan
Merrill B. Dean	73	Pennsylvania	September 4	Candor
Leonard A. Dessar	79	Indiana	October 4	Manhattan
Donald K. Flessa	41	Cornell	July 22	Babylon
John W. Gallagher	46	Pennsylvania	September 18	Perry
Joseph M. Levine	45	Cornell	September 21	Brooklyn
William E. McCollom	63	P. & S., N.Y.	October 13	Brooklyn
Robert C. Mooney	60	Albany	October 4	Gloversville
Fairfield Mortimore	90	N.Y. Eclectic	September 30	Manhattan
John Nelson	62	P. & S., N.Y.	September 30	Manhattan
John H. Pratt	78	Bellevue	September 21	Manchester
Hassow O. von Wedel	56	N.Y. Univ.	October 10	Ardsley-on-Hudson
Ira S. Wile	65	Pennsylvania	October 9	Manhattan

Urgent and Important!

October 19, 1943

To physicians treating compensation patients for colleagues in the armed services:

The attention of all physicians authorized under the Workmen's Compensation Law is called to the importance of a recent ruling of the Department of Labor requiring every physician who takes over the compensation practice of another physician who has entered the armed services of the country to register this fact at once with the Department of Labor. The Industrial Commissioner will issue a dispensation to exempt the physician* in the service from the application of Section 13-d of the Workmen's Compensation Law, which prohibits the rebating, dividing, assigning of fees, etc.

This dispensation is possible under State enactment and will be granted upon request to cover such instances as related above.

Dispensation from the peacetime requirements of Section 13-d of the Workmen's Compensation Law is required in order to prevent peacetime restrictions from interfering with the maximum possible effort in the successful prosecution of the war, and the granting of such dispensation to permit the division and transference of fees in the present instance does not violate any of the standards set forth in Section 81 of the New York State War Emergency Act.

Under Article VIII of the New York State War Emergency Act, the Industrial Commissioner has the power to grant such dispensation upon request of the physician taking over the practice of one who has entered the armed services.

Address such requests at once to the Industrial Commissioner, 80 Centre Street, New York City, and send a copy of same to this Bureau.

WORKMEN'S COMPENSATION BUREAU
Medical Society of the State of New York
292 Madison Avenue
New York 17, New York

* Treating patients for another physician.



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FOXHOLE No. 9

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Hospital News

A.H.A. Forms Council to Improve Hospital Care

A COUNCIL on international relations, designed to promote better hospital care for the people of the world, was established by the board of trustees of the American Hospital Association at its wartime conference held in Buffalo September 13 to 17.

James A. Hamilton, of New Haven, Connecticut, president of the Association, announced the creation of a postwar planning commission on hospital care.

Felix Lamela, of Washington, D.C., secretary-treasurer of the Inter-American Hospital Association and hospital consultant of the Pan-American Sanitary Bureau, said the international relations council will concern itself with matters affecting the cooperation of hospitals in all countries, and promote better hospital care for the people of the world through the coordination of national hospital associations and the exchange of information on matters of hospital administration.

Establishment of the council, he added, is the result of eight years of work by the Inter-American Committee of the American Hospital Association, headed by Dr. M. T. MacEachern, associate director of the American College of Surgeons, Chicago. The council will cooperate with Nelson Rockefeller, coordinator of the Office of Inter-American Affairs, and plans to assist in maintaining reciprocal relations with all hospital groups in the world.

Dr. David G. Cooper, chairman of the Tuberculosis Section, appointed a committee of three consisting of Dr. Robert E. Plunkett, chairman, and Drs. John B. Barnwell and William G. Childress, to meet with him and summarize the recommendations of the section. On the basis of the papers which had been presented, the committee reported it was evident that: (1) hospitals are reservoirs of infectious cases of tuberculosis; (2) hospitals have facilities readily available for case finding among patients and employees; (3) the average case of tuberculosis costs in the neighborhood of $8,000. This brings into bold relief how expensive it is to tolerate a preventable disease. Compared with enormous drain on the public treasury to pay the price of indifference and neglect, it costs but a pittance to make effective use of modern implements of diagnosis and prevention; (4) hospitals have a moral and usually a legal responsibility in affording patients and employees protection against this infectious and preventable disease.

The committee supplemented this statement with recommendations that (*a*) all hospitals provide x-ray and such clinical facilities as may be necessary for the detection of pulmonary tuberculosis, and (*b*) all hospitals develop facilities to meet at least the temporary medical and nursing needs of patients so found.

Wartime Nursing Is Different*

IT IS utterly impossible to provide the necessary volume of wartime nursing service on a peacetime basis. Places where nursing is going on as usual must share with others. Individual nurses who have not made adjustments to wartime needs for their service should understand the necessity for their participation.

The National Nursing Council has pointed out that the value of any national plan must be judged by its usefulness at the local level, i.e., where nurses live and work—in the country, in the villages, towns, and cities of the nation.

Wartime nursing is different! That inescapable fact must be generally accepted by nurses, by physicians, and by hospital administrators. Energy and motion now spent in resistance to change must be released for the attack on war-created needs.

Nurses have wrought many changes, but not enough, in the pattern of nursing service since Pearl Harbor. "We just do the best we can" is heard more frequently than "This is our plan." Generally speaking, educational programs have received more thought than the service programs. Acceleration of the basic course in nursing is an outstanding example. State boards of nurse examiners have initiated others.

The principles of good nursing have not changed, but nurses are learning to concentrate on the essentials. In the analysis and administration of nursing service radical changes are being made. Tremendously valuable assistance in caring for patients is being secured from the Red Cross nurse's aides and other volunteers as well as from paid auxiliary workers.

Thus far, nursing service has not been rationed; such rationing would be complicated by the differences in individual nurses and the degree of essentiality of needed services. The sharing of services is more difficult than the sharing of goods.

A critical shortage of nurses exists. Here are the facts:

Over 36,000 nurses are now with the armed forces, and the Red Cross has accepted responsibility for the recruitment of an equal number by June 30, 1944. Our men are receiving skilled medical care of a high order, as shown by the high percentage of recovery from injury. Skilled nursing is an important factor in such care. Then, too, the very presence of nurses near the bases of military operations has repeatedly been described as a potent force in maintaining morale.

There has been an unprecedented increase in the use of civilian hospitals. Hospitals gave fourteen and a quarter million more days of care in 1942 than in the preceding year, and the trend still is definitely upward. This is in keeping with the rapid growth of the Blue Cross (group hospitalization) plans and the Children's Bureau hospitalization program for the care of the families of service men.

Nursing is essential to the nation's health. The National Nursing Inventories (of nursing resources) of 1941 and 1943, by the U.S. Public Health Service, offer a comparison of data for the two years.

The total number of nurses graduated in the

[Continued on page 2104]

* This article is a release from the Directing Board of the War Manpower Commission's Procurement and Assignment Service for Physicians, Dentists, Veterinarians, Sanitary Engineers, and Nurses.

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FOR ORAL USE

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NEW YORK 13, N. Y. WINDSOR, ONT.

[Continued from page 2102]

two years is well in excess of the number withdrawn for military service; this fact is not apparent in the inventory. The returns are apparently incomplete. Active nurses who did not return their questionnaires apparently did not realize the profound importance of the information requested. This information is the basis for present planning and safeguarding the future.

The relatively small decrease in the number of institutional nurses is much less significant than the increased use of hospitals in creating the serious shortage of nurses. The increased number of nurses in industrial nursing is, of course, not surprising.

The large number of inactive nurses who reported themselves available is encouraging, but—available for what? Full time? Part time? These nurses and others who are still "hidden" can make a valuable contribution to our nursing resources. Although it requires a little more planning, the service of two part-time nurses can equal that of one full-time one. Wartime nursing puts a tremendous burden on all the administrative nurses.

Here is the program of the new Nursing Division of the Procurement and Assignment Service. The Red Cross recruitment committees are pledged to recruit 36,000 nurses this year. The new division will (1) determine the availability for military service or essentiality for civilian service of all nurses eligible for military service, and will submit such determinations to the American Red Cross for use in procurement of nurses for the Armed Forces; (2) promote plans for maximum utilization of full-time nurses and those who are able to serve only part time; (3) develop and maintain a roster of all graduate registered nurses; and (4) develop and encourage sound methods of supplementing the work of nurses with nonprofessional personnel.

Through the War Manpower Commission, nursing will not only have the benefit of the experience of medicine in the procurement and assignment of physicians, but means will be found to interpret wartime nursing to physicians and their cooperation secured in effecting desirable wartime adjustments.

TABLE 1.—NATIONAL NURSING INVENTORIES

	1941	1943
Total returns	289,286	259,174
Active		
Institutional	81,708	77,704
Public Health	17,766	18,900
Industrial	5,512	11,220
Private duty	46,793	44,299
Other	21,276	18,476
Inactive but available for nursing	25,252	38,746 (of these 23,576 are married and under 40)
Inactive, not available	90,979	49,829
In Nurse Corps of Army and Navy	6,371	over 36,000 (precise data not available)

Suggested Readings

1. Priorities for Nurses, New York, National Nursing Council for War Service, May, 1943, revised edition.
2. Distribution of Nursing Service During War, New York, National Nursing Council for War Service, May, 1942.
3. Volunteers in Health, Medical Care and Nursing, Washington, D.C., U.S. Office of Civilian Defense.

Report Analyzes Prevalence of Illness

WIDESPREAD interest in the results of the first detailed study ever undertaken in the United States or in any other country to ascertain the occurrence of major diseases among the residents of a large city, was reported by the Research Bureau of the Welfare Council in announcing that the edition published on July 28 of Volume 2 of the Hospital Discharge Study for New York City had been nearly exhausted.

The 348-page report, "Hospitalized Illness in New York City," was prepared by Neva R. Deardorff, Ph.D., and Marta Fraenkel, M.D., of the Research Bureau.

The volume analyzes data on the 576,623 patients discharged from 113 hospitals in New York City in 1933. Fourteen disease groups are surveyed to show the frequency of their occurrence; the age, color, sex, and socio-economic background of the patients; the types of hospitals used by the patients for treatment; and the kinds of care offered.

Commenting on the report, Dr. Charles F. Bolduan, former Director of Health in the New York City Health Department, said: "Never before has so much detailed information regarding illness in a large city been made available. While the reporting of death statistics has become routine in every country of the world, and while most countries also provide for the reporting of communicable diseases, there has, until now, been no way of collecting accurate information regarding the occurrence of diseases generally.

"Reliable information concerning the demands for hospital care is especially important at this time when the provision of adequate medical care for the people of this country is a matter of major concern.

"The Hospital Discharge Study demonstrates that hospital records, when dealt with in the manner used in this report, can furnish the type of information which is needed for proper community health programs."

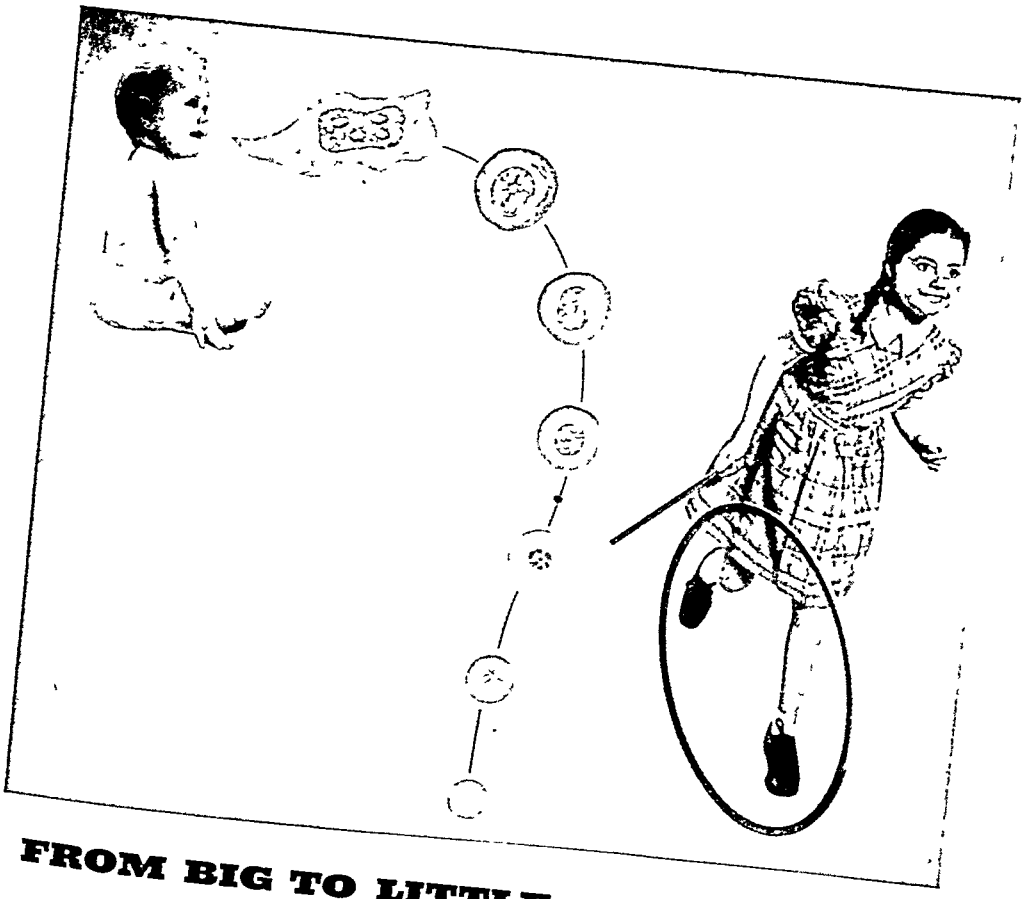
"The Hospital Discharge Study was begun early in 1934 at the suggestion of the Research Bureau of the Welfare Council as a project of the Works Project Administration.

Volume 3, scheduled for publication within a few months, will complete the study by presenting detailed recommendations of ways and means for routine reporting and tabulation of morbidity data of hospital patients.—*Better Times*

Improvements

Lenox Hill Hospital on October 7 opened a Rehabilitation Clinic to provide needed psychiatric help for men rejected at induction or discharged from the armed forces on psychiatric grounds. The Clinic is under the direction of Dr. Thomas K. Davis, with Dr. Johan H. W. van Ophuijsen, attending psychiatrist, in charge. Work is being done by the Neuropsychiatric Staff, assisted by a group of volunteer psychiatric social workers and secretaries, sessions beginning at 7:30 each Thursday evening. Although the therapeutic aspect will be stressed, clinical and statistical research will also be pursued.

[Continued on page 2106]



FROM BIG TO LITTLE
AND FROM LITTLE TO BIG

• As the child grows and hemohistioblasts diminish to mature erythrocytes in increasing numbers, iron becomes a factor of primary nutritional importance. Physiologic increase of blood volume during adolescence ranks with hemorrhage as a contributing cause of iron deficiency,[1] and studies of a group of high school girls indicate that growth actually affects the blood picture more than does the menarche.[2]

Iron is prophylactically and therapeutically specific for hypochromic anemia resulting from deficiency of this element. Hemoglobin regeneration following blood donation is far more rapid when supplemental iron is administered than when it is withheld.[3] Moreover, ferrous sulfate is recommended as the most efficiently assimilated form of iron.[4]

• • •

'Ribothiron' Tablets and Elixir were designed for the prophylaxis or treatment of hypochromic anemia and provide ferrous sulfate combined with thiamine and riboflavin to aid absorption and assimilation of the factors necessary for normal hemopoiesis.

Sharp & Dohme, Philadelphia, Pa.

'RIBOTHIRON' TABLETS AND ELIXIR

TABLETS (Sugar-coated, green)	ELIXIR (Alcohol, 10 per cent)
Each tablet contains:	*Each fluidounce contains:*
3 gr. exsiccated *Ferrous Sulfate* (U.S.P.)	20 gr. (equiv. to 4.3 gr. U.S.P.)
0.25 mg. ..... *Thiamine Hydrochloride* (Vitamin B_1)	..... 1 mg.
0.5 mg. ..... *Riboflavin* (Vitamin B_2 or G)	..... 2 mg.

1. Heath, C. W.: J.A.M.A., 120:366, October 3, 1942. 2. Leichsenring, J. M., Donelson, E. G., and Wall, L. M.: Am. J. Dis. of Children, 62:262, August, 1941. 3. Fowler, W. M., and Barer, A. P.: J.A.M.A., 118:421, Feb. 7, 1942. 4. Santr. A. C.: Am. J. Med. Sci., 201:790, June, 1941.

[Continued from page 2104]

A resolution awarding contracts totaling $18,102.24 for furnishings and equipment at the new wing of Brooks Hospital in Dunkirk was adopted by the hospital board at a meeting on September 17.

Fifteen contracts were awarded after the bids had been approved by the Federal Works Agency, which is financing the project.*

• • •

Construction work will get under way in a few weeks on a two-story nurses' school addition to New Syracuse General hospital to help meet the shortage of trained nurses, authoritative spokesmen in Syracuse revealed yesterday afternoon.

• • •

Plans are being made to erect an addition to the Nathan Littauer Hospital in Gloversville. An increase in the size of the Nurses' Home is also under consideration.

• • •

A rummage sale for the benefit of the Dansville General Hospital was held from October 25 to October 30.*

• • •

The larder of Canastota Memorial Hospital was recently augmented by gifts of food made on an old-fashioned "donation day."*

• • •

The canteen at the Good Samaritan Hospital at Suffern has served as many as 4,000 persons in a single month during the nine-month period that it has been in operation, it is announced by Mrs. Royal F. Sengstacken, president of the hospital guild which maintains the project.*

• • •

Approval of the funds for the construction and equipping of an addition to the new Syracuse General Hospital was received in August by authorities in Syracuse. Sanction of other government agencies, however, must be given before the work can be started.

• • •

At a meeting of the Board of Directors of the Batavia Hospital it was decided to announce to the public, in response to many inquiries, that plans for a new fireproof building have been drawn and are on file. A special committee has been working on a campaign plan to raise funds so that construction can be started after the war.*

At the Helm

Drs. Harry Katz and Irving Newman have been made associates in medicine at French Hospital in New York City.

• • •

Samuel W. Rice, formerly of Dayton, Ohio, has assumed his new position as superintendent of the Physicians Hospital, Plattsburg, succeeding Dr. Irving S. Haynes, who has retired.

Mr. Rice was the acting administrator of the Miami Valley Hospital at Dayton before taking over his new post.

A graduate of George Washington University, Washington, D.C., he has been in the hospital field for many years in the capacity of superintendent. During World War I he was a first lieutenant in the Aviation Corps of the U.S. Army, serving from 1917 to 1919.

Dr. Haynes, the retiring superintendent, was formerly professor emeritus of clinical surgery at the Medical College of Cornell University in New York City.*

• • •

Everett W. Jones has joined the staff of *The Modern Hospital* as a vice-president. He will for the present concentrate on problems involving the *Hospital Yearbook* and Latin-American publications.

Mr. Jones is head hospital consultant in the Governmental Division of the War Production Board. He is also administrator-on-leave of Albany Hospital, Albany, New York, where he has carried the title of director and assistant secretary of [illegible] Mr. Jones has completed [illegible] hospital section in the [illegible] of WPB and is now able [illegible] duties. Maury Maverick director of the division, has asked Mr. Jones to continue as a consultant on hospital problems on a part-time basis.

Mr. Jones is an engineer by training, having received his B.S.E. from the University of Wisconsin in 1923. From 1917 to 1919 he was a member of the U.S. Army Medical Corps of the American Expeditionary Force. During the summers of 1921 and 1922 he was an engineer and inspector for the Wisconsin State Highway Commission. He was an engineer in the development division of Western Electric Company in 1923 and 1924.

In the latter year he was appointed chief engineer of the John A. Manning Paper Company, Troy, New York, where in 1926 he was advanced to general operating superintendent. In 1933 and 1934, Mr. Jones did special work in sales engineering and marketing geography for the Behr-Manning Corporation. This work was in addition to his regular work in the paper mill.

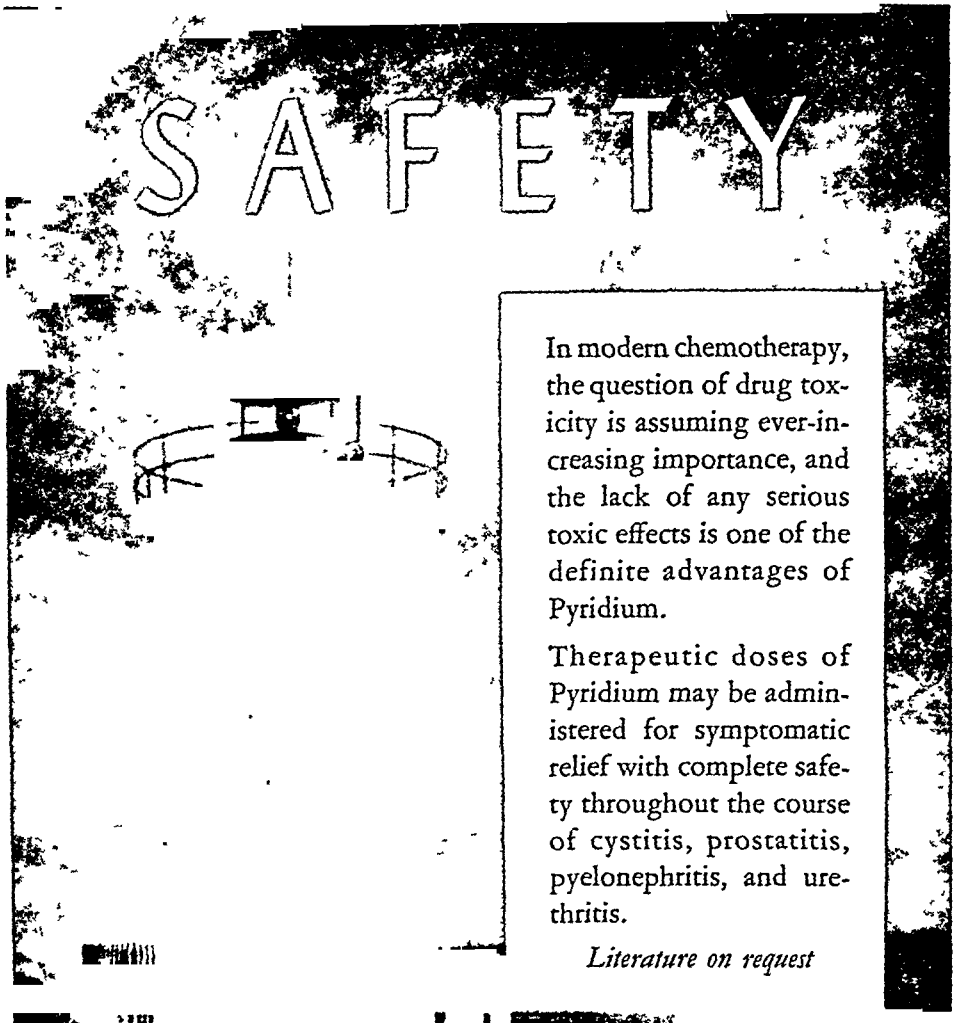
When the late John A. Manning, president of the Behr-Manning Corporation and of the John A. Manning Paper Company, was made president of Albany Hospital in 1930, Mr. Jones became Mr. Manning's consultant and adviser at the hospital until, in 1934, he went to the hospital on a full-time basis; he was appointed director in 1935.

At Albany Hospital, Mr. Jones raised the professional level of the institution, improved its personnel practices, strengthened its financial position, and promoted a broad public relations program. Under his supervision, a $500,000 program of plant renovation and modernization was carried out.

He has been an active member of the regional, state, and national hospital associations and of the American College of Hospital Administrators. He is one of the founders of the Associated Hospital Service of the Capitol District, the Albany Blue Cross plan, and served on its executive committee until going to Washington. He has also served as chairman of the Hospital Council of Albany and as president of the Northeastern New York Hospital Association.

[Continued on page 2108]

* Asterisk indicates that item is from local newspaper.



In modern chemotherapy, the question of drug toxicity is assuming ever-increasing importance, and the lack of any serious toxic effects is one of the definite advantages of Pyridium.

Therapeutic doses of Pyridium may be administered for symptomatic relief with complete safety throughout the course of cystitis, prostatitis, pyelonephritis, and urethritis.

Literature on request

More than a decade of service in urogenital infections

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MERCK & CO., Inc. *Manufacturing Chemists* RAHWAY, N. J.

[Continued from page 2106]

Mr. Jones served for five years as chairman of the New York State Hospital Association committee on social welfare laws and his work was largely responsible for improved relations between hospitals and welfare commissioners and for increased rates of payment for the care of indigents in New York hospitals.

In the American Hospital Association, Mr. Jones has been active on many committees. He has been a member of the Latin-American committee since 1937 and has been an alternate in the A.H.A. house of delegates since 1941. He has been chairman of the pharmacy section and of the committee on purchasing, simplification, and standardization, as well as a member of the committee on fuel economy, repairs, and maintenance.—*The Modern Hospital*

• • •

Dr. Cornelius P. Rhoads, Director of the Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, has been given leave of absence to become Chief of the Medical Division of the Chemical Warfare Service of the U.S. Army, with the rank of colonel.

Dr. Rhoads is Secretary of the American Society for the Control of Cancer, and has been a member of the board since March, 1940.*

• • •

Major Samuel E. Bilik, chief of Physical Therapy and Rehabilitation at Oliver General Hospital, will deliver a series of lectures on various aspects of physical therapy to third and fourth year students of the University of Georgia Medical School at Augusta, Ga.

• • •

Dr. Arthur W. Pense, director of clinical psychiatry at the Utica State Hospital, has taken up the duties of deputy medical inspector.

His headquarters will be at 80 Center Street, Room 609, New York City.

• • •

Appointment of Miss Eleanor M. Taylor of New York City as medical record librarian at Glens Falls Hospital has been announced by Frederick G. Bascom, president of the hospital board of directors. Miss Taylor assumed her duties on October 1, succeeding Miss Rosemary Colvin, who resigned on August 31 to return to her home in Troy, after being associated with the local hospital for seven years.*

• • •

Dr. Lucy Cobb, who in private life is Mrs. John M. Ross, Utica and Clinton, will become senior physician in the Arizona State Hospital, Phoenix, Nov. 1.

Dr. Cobb, who was graduated from the Syracuse University School of Medicine in 1933, went to Utica that year to serve as intern in the Marcy State Hospital.

She resigned from the local state hospital staff and established a private office there after her marriage to the late Mr. Ross. She is widely known as a psychiatrist.*

• • •

The appointment of William H. Clayton, of Kings Park, as a member of the Board of Visitors of the Kings Park State Hospital in Kings Park for a seven-year term has been announced by Governor Thomas E. Dewey at Albany. Mr. Clayton succeeds Joseph F. O'Brien, Patchogue attorney, whose term expired last December.*

• • •

Dr. Ronald B. Mershon, cardiologist and psychiatrist at the Veterans' Hospital in Canandaigua for five years, has resigned to go to Detroit, where he will become a member of the staff of the Henry Ford Hospital, specializing in internal medicine. Dr. Mershon also has served as temporary cardiologist at the F. F. Thompson Hospital, also in Canandaigua, since July, 1942.*

• • •

Mrs. Genevieve O'Brien is the new superintendent of the Saranac Lake General Hospital.

A graduate of the local schools, Mrs. O'Brien received her nursing degree from the Newark City Hospital in Newark, New Jersey, in 1926. She served for six years as floor supervisor in the Newark City Hospital and for three years in the Presbyterian Hospital in Newark.

Later she went to the Schenectady County Tuberculosis Hospital, where for eight years she was floor supervisor. Two and a half years ago, Mrs. O'Brien returned to Saranac Lake and has been a nurse on the staff of the local hospital since that time.*

• • •

Dr. Charles Martin of Woodmere has been appointed acting chief of pediatrics at South Nassau Communities Hospital.

Dr. Martin replaces Dr. Herbert Elias, who has enlisted in the armed forces. Dr. Harold S. Rubin, of Hempstead, and Dr. Eugene A. Stanchi, of Freeport, were named assistant chiefs.*

Newsy Notes

Mount Vernon Hospital recently announced the inauguration of a Baby Budget Plan. Its main feature is a schedule of monthly payments, by means of which prospective parents desiring semiprivate accommodations or who are eligible to receive ward care may make advance payments to defray anticipated expenses of confinement. Parents who make use of this plan realize a saving of more than 7 per cent in the cost of ward care and of nearly 6 per cent if semiprivate accommodations are chosen. No provision is made for private patients.

Mr. Arthur L. Zerbey, president of the Board of Managers of the Hospital, who announced the Baby Budget Plan, explained that it is designed to ease the financial load of hospital charges at the time the baby arrives. Deposits made under this plan would be immediately refunded upon request any time during the payment period.—*Westchester Med. Bull.*

• • •

[Continued on page 2110]

TESTED...
AND PROVED



*measurably

LESS IRRITATING

to the Nose and Throat

**Reprints of studies on the irritant properties of cigarettes are available. Address your request to Philip Morris & Co. Ltd., Inc., 119 Fifth Avenue, New York.*

[Continued from page 2108]

In honor of her daughter, the late Mrs. Esther Brody Shapiro, a memorial gift of $500 was presented to the Rockaway Beach Hospital by Mrs. Jacob Brody. The hospital recently received an anonymous gift of $800.*

• • •

Bailey-Jones Hospital in Ithaca closed on September 30 after nearly eleven years of service.*

• • •

Sixteen general rotating internships are now open at the Hospital for Joint Diseases in New York City. The hospital provides maintenance, uniforms, and a stipend of $15 a month.

About 6,000 patients are treated annually, around 70 per cent of whom are on ward service; the Outpatient Department treats about 700 daily, and the country branch has accommodations for 60 patients.

The medical and surgical services include surgery, urology, proctology, gynecology, obstetrics, ophthalmology, otolaryngology, orthopaedic surgery, neurosurgery, medicine, pediatrics, neuropsychiatry, dermatology, pathology, chemistry, bacteriology, radiology, and physical therapy. Upon completion of the internship, interns will be eligible as residents in orthopaedic surgery.

Appointments will be made immediately, upon receipt of the applicant's credentials and qualifications, for three interns to begin April 1, 1944, four to begin July 1,1944, four to start October 1, 1944, and five to begin January 1, 1945. The appointments are for nine months' internship; half of the number appointed may be permitted to continue as junior residents for another nine months. Four of these may then remain as senior residents for nine months.

Applications should be addressed to the Director, Hospital for Joint Diseases, 1919 Madison Avenue, New York 35, New York.

• • •

The first of a series of weekly scientific meetings at the 120th Station Hospital located "somewhere in England" was held on August 27, 1943. Capt. J. D. Matis spoke on "Diagnostic Limitations of Electrocardiography," stressing the problems as seen in a military hospital. The next meeting, held on September 3, 1943, had as the topic "Anesthesia in a Military Hospital" and was given by Lt. M. F. Leeds, chief of anesthesia section of the hospital. Lieutenant Leeds recently returned to the unit after a study of anesthesia methods at English hospitals.

The 120th Station Hospital was organized at Camp Barkeley, Texas, under the direction of Col. Joseph Haas, formerly of the staffs of Harlem and Mount Sinai Hospitals in New York City. The organization is now located on a fine country estate and occupies a well-equipped and well-planned hospital site. It is getting an early start in making itself known as an efficient military institution for the care of sick and wounded. The following medical officers are from New York State: Col. Joseph Haas, Maj. W. H. Le Strange, Capt. W. Goldfarb, Capt. J. D. Matis, and Lt. Z. Yarchoan, of New York City; Maj. V. Cohen, of Buffalo; and Lt. L. A. Pagnillo, of Yonkers. Lt. M. Rindsberg and Lt. S. Egert are Medical Administrative Officers who come from New York City.

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White Plains Hospital has recently completed the training of eight local business men who have gone through a twenty hour course and thirty hours of service to qualify as hospital orderlies. These men were awarded certificates by Mayor C. T. S. Fish of White Plains, as members of the Volunteer Orderly Corps, a branch of the National Civilian Service Corps. Eight other local business men who have completed the course but have not yet had experience received sleeve insignias.

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The late Israel Katz, one of the founders of the Monticello Hospital, bequeathed the institution $100.*

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Sports events and other spectacles staged in Madison Square Garden in New York City will be televised by the National Broadcasting Company. The telecasts will be noncommercial, and will be chiefly for the enjoyment of wounded servicemen in hospitals in the New York area.

Television receivers have been installed by the NBC in the Halloran General Hospital, Staten Island, and the Naval Hospital, St. Albans, Queens, and will be placed as soon as possible in the Tilton General Hospital, Fort Dix, New Jersey, the Naval Hospital in Brooklyn, and the naval convalescent hospital at Harriman, New York. Because no television receivers have been made in this country since the United States entered the war, officials of the network are donating their personal sets to the hospitals.

Within the local television area of seventy-five miles, the telecasts will be carried by the NBC's Station WNBT, with rebroadcasts through Station WPTZ in Philadelphia and Station WRGB in Schenectady, it was announced. George Putnam, radio news commentator, will serve as master of ceremonies.

The first program was a telecast of the rodeo which was staged at the Garden on October 25. Subsequent shows will include fights, track meets, and basketball and hockey games. Army and Navy medical and recreation officers have expressed their approval and appreciation of the plan, which will be without cost to the Government, the NBC said.

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Among the first gifts to the United Hospital Fund of New York were one of $50,000 from Mrs. Charles S.Payson of New York City, one of $10,000 from John D. Rockefeller, Jr., and one of $10,000 from The Charles Hayden Foundation.*

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Wyckoff Heights Hospital in Brooklyn has won the annual national award offered by the American Hospital Association to the hospital having the best public relations program and presenting the best educational program to the public on National Hospital Day. The award was presented to the hospital at the annual convention of the American Hospital Association held in Buffalo in October.*

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Hudson River State Hospital employees association gave a farewell party for Dr. William J. Thomp-

[Continued on page 2112]

Appreciated BY THE ULCER PATIENT

GREATER AND MORE PROLONGED ACID-NEUTRALIZING POWER

STOPS PAIN PROMPTLY...
HOLDS IT IN ABEYANCE...
PREVENTS RECURRENCE AT NIGHT

A True Magma

•

No Aluminum Hydroxide Used to Hold It In Suspension; Hence No Undesirable Astringency, No Constipation

Chloride depletion, astringent action, and the resultant undesirable constipation which beset so many other antacids are absent from Magmasil therapy. Hence patient cooperation is assured and rapid clinical results ensue in peptic ulcer, gastritis, hyperchlorhydria.

Magmasil, a palatable, stable aqueous suspension of hydrated magnesium trisilicate, neutralizes 86 cc. of N/10 HCl per teaspoonful. This action is exerted over fully four hours, permitting of fewer administrations, simplifying treatment.

Because of this prolonged action, the 11:00 p.m. dose usually enables the patient to sleep comfortably through the night.

Magmasil therapy permits of early liberalization of the diet, a feature much appreciated by the patient, and leads to rapid healing and remission.

Physicians are invited to send for samples and a complimentary copy of the brochure "Twenty Years of Progress in Ulcer Therapy."

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IN PEPTIC ULCER...

GASTRIC HYPERACIDITY...

ACUTE AND CHRONIC GASTRITIS

[Continued from page 2108]

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[Continued on page 2112]

Parke-Davis Announces:

• The application of its distinctive Immunogen* principle to the production of a new cold vaccine, oral and parenteral—

Immunovac*

• Combining the immunizing properties of whole bacterial vaccine with water soluble, surface antigens, or ecto-antigens, means—

MAXIMUM ANTIGENIC PROPERTIES WITHOUT INCREASED REACTIVITY

• Each enteric coated tablet of IMMUNOVAC Cold Vaccine, for oral use, represents:

WHOLE KILLED BACTERIA

Pneumococcus (Diplococcus pneumoniae)	30,000 million
Streptococcus (hemolytic and non-hemolytic)	15,000 million
Hemophilus influenzae	2,500 million
Neisseria catarrhalis	2,500 million
Staphylococcus, aureus and albus	3,000 million
Klebsiella pneumoniae (Friedlander bacillus)	1,000 million
Corynebacterium pseudodiphthericum (pneudodiphtheria bacillus)	1,000 million

ECTO-ANTIGENS

Pneumococcus (Diplococcus pneumoniae)	2,000 million
Streptococcus (hemolytic and non-hemolytic)	2,000 million
Hemophilus influenzae	2,000 million
Neisseria catarrhalis	2,000 million
Staphylococcus, aureus and albus	2,000 million

*TRADE-MARKS REG. U. S. PAT. OFF.

• **IMMUNOVAC** prophylactic therapy seeks to reduce the incidence and severity of symptoms of the common cold and other respiratory infections. This year, of all years, your patients *must* avoid colds, if at all possible, in order to stay well and "on the job" producing the materials for victory.

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DETROIT, MICHIGAN

[Continued from page 2110]

son, retiring senior assistant physician of the hospital, and Mrs. Thompson, on September 24.

Gifts of war bonds and stamps were presented to the couple.*

• • •

A campaign for funds to erect the remaining buildings planned for St. Jerome's Hospital after the war will be launched in Batavia on November 14.*

• • •

Many hospitals have not returned the questionnaire recently sent out by the Procurement and Assignment Service. If this questionnaire is not returned immediately, hospitals will have to be appraised on the basis of old information and therefore will not receive as satisfactory allocation of house staff. Prompt returns are imperative.—*J.A.M.A., September 25*

• • •

"Hospitals in Buffalo and Erie County are well managed, well run, and meet the requirements for top-ranking institutions," Everett W. Jones, chief hospital consultant of the War Production Board in Washington, told members of the Buffalo Lions Club on September 13. Close inspection of local hospitals places them among the foremost in the country, he declared.*

• • •

The United Hospital Fund of New York has issued a survey that reveals how New York City's voluntary, nonprofit hospitals have contributed to the nation's armed forces. The survey disclosed that from the seventy-six fund-member hospitals 9,474 persons have moved to training areas and battle stations since our entry into the war (as of September 25).

Of this number 5,243 were doctors, 2,005 nurses, and 2,228 skilled or unskilled hospital personnel, the survey said. Casualty reports to date show that twenty-five of the doctors have been killed in action, eighteen wounded, and six reported as missing. Three nurses have been killed, a fourth has been wounded and a fifth is missing. Of the other workers, seven have been killed and one wounded.

A score or more of citations and decorations "testify to the gallantry of others who left New York's voluntary hospitals to minister to and guard the health of America's fighting men," the survey said.*

• • •

Hospital visitors are now rationed in seventy-six voluntary New York City hospitals.

This move is for the best interest of the patient. Guiding visitors to rooms and seeing that they obey regulations and leave when they should takes the time of hospital workers. Visitors also interrupt nursing care. In ordinary times hospitals were glad to arrange schedules to permit a maximum of social life for the patient. Now conditions beyond their control make it necessary to impose wartime restrictions.*

• • •

Allotment of $6,744,058 to 122 additional schools of nursing to train 12,620 student nurses in the United States cadet nurses training program has been announced by Dr. Thomas Parran, Surgeon General of the United States Public Health Service on September 18.

Dr. Parran said the allotment brought the total fund earmarked for nurses' training to $27,492,231 distributed among 415 schools of nursing. The schools will train 51,480 student nurses, of whom 24,309 are new recruits and 27,171 are second and third-year students already in training.

The cadet nurse corps funds provide tuition, fees, maintenance, uniform, and a monthly allowance for the cadets.

Miss Lucille Petry, director of nurse education of the Public Health Service, said that the program would continue to expand and that the corps would need at least 65,000 new nurse-trainees during the present fiscal year.

Allotments on September 18 and the number of nurses to be trained in each school included:

New York—New York Department of Hospitals, including Kings County, Metropolitan, Harlem, Cumberland, Bellevue, and Fordham, 1,040; Lincoln Hospital, New York City, 65; Vassar Brothers Hospital, Poughkeepsie, 153; Kingston Hospital, Kingston, 58; Our Lady of Victory School of Nursing, Kingston, 69; Rochester State Hospital, Rochester, 29; Schenectady Hospital Association Training School for Nurses, Schenectady, 55; Adelphi College, Garden City, 194; White Plains Hospital, White Plains, 4.*

• • •

A campaign to bring back into hospitals nurses who have left their profession for more remunerative war jobs was opened at a meeting of a special committee of the New York State Nurses Association, held at the Lenox Hill Hospital on September 29.*

• • •

Girl and Boy Scouts are preparing to do volunteer work in New York hospitals.

The Scouts assist with many types of work and are found useful in many fields. They serve as messengers, receptionists, traffic officers, and switchboard operators. They clean and replace test tubes and vials and prepare this equipment for experiments. They do clerical work, keep files, and assist patients in many ways.

Boy Scout aid is so desired that one hospital has requested a staff of seventy daily, it is announced; this has relieved technicians for more difficult work. Last August, he said, 100 Scouts served two days a week, three hours a day. The closing of Scout camps made it possible for 100 more to engage in this activity.

The Girl Scouts will serve as aides in occupational therapy, and thus put to practical use the training that they already have in arts and crafts. This project has the approval of the American Association of Occupational Therapists, which will assist by training troop leaders in duties required of the girls.

By the beginning of the year members of the troops will be ready to begin their work, which will be largely with children and convalescents. All the girls enlisted as aides will learn hospital procedures and will work under direct supervision of trained therapists.

A third group cooperating in the program is the Boys Clubs of America, which has offered to assist

[Continued on page 2114]

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[Continued from page 2112]

by constructing the looms used in weaving, bed trays, frames for hooked rugs or embroidery, and other equipment.*

• • •

The British War Relief Society of America has presented the sum of $120,000 to the Queen Victoria Cottage Hospital at East Grinstead, Sussex, England, according to press releases received in New York.

Clark H. Minor, president of the Society, said that the gift marked the completion of the hospital's fourth year of operation.

The hospital specializes in plastic surgery, and the American gift will provide a much-needed new operating clinic. This will be a permanent memorial to the Society's work, which, Mr. Minor said, has brought Britain and the United States into close cooperation and friendship during the war. The majority of the patients to be treated at the new clinic will be airmen who have suffered facial scars in operational flights.

• • •

In spite of the wartime shortage of trained personnel and necessary supplies, the triennial report of the Memorial Hospital for the Treatment of Cancer and Allied Diseases, in New York City, shows that the hospital has not only carried on its work but has also expanded its study of research, treatment, and prevention.

During 1942 the hospital had its most active year, with 13,629 patients admitted, 11,143 patients operated upon, and 319 patients treated in the children's cancer ward, the only one of its kind in the world.

The goal, set forth in the report, is a chemical cure and the prevention of cancer. Encouraging steps have been taken toward that goal by members of the staff during the last three years.

• • •

At a meeting of its board of directors recently, the Southampton Hospital decided to join the new United States Cadet Nurse Corps project, on behalf of the school of nursing. Applicants are being accepted for the course beginning this fall.

• • •

Benefit card parties have been responsible recently for an increase in the funds of several hospitals. Among them are the Stamford Hospital, whose Ladies' Auxiliary turned over to it $205 after a card party on August 18, and the Mahopac Emergency Hospital, which received the money cleared on a series of benefit parties.

• • •

Publication of a four-page bulletin has been initiated by the Children's Hospital Aid Association of Buffalo for the purpose of keeping members and others in closer touch with the activities of the association.

As yet unnamed, the bulletin's title will be chosen from suggestions sent in by readers. A prize of $10 in war stamps will be awarded to the winner.

The first issue of the bulletin contains accounts of the hospital's blood bank and mothers' milk bank and also contains a brief history of the hospital's fifty years of progress.

• • •

Because of wartime conditions, the doors of the old building of the Lebanon Hospital in the Bronx were closed at the end of August, marking the discontinuation of the oldest volunteer hospital in the Bronx. The closing came a little more than a month after the new Lebanon Building had been taken over for use by the Wacs.

• • •

The new Army General Hospital in Atlantic City is now housing several hundred new patients. Wounded on various fronts, including Sicily, the men were transferred to Atlantic City from Halloran General Hospital, Staten Island.*

LONG ISLAND COLLEGE FUND OVERSUBSCRIBED

The first annual development fund appeal recently completed by the Long Island College of Medicine, Brooklyn, New York, raised $42,118. The goal of the fund was $40,000. Approximately eleven hundred gifts were made.

This report was made at the meeting on September 28 of the College's Board of Trustees, of which Dr. Frank L. Babbott, former president of the College, is chairman. The chairman of the development fund committee, Dr. Nathaniel P. Rathbun, alumnus of the class of 1898 and member of the Board of Trustees, delivered the report.

Dr. Charles A. Gordon headed the division of the medical profession in the development fund effort, and Dr. George Freiman, class of 1914, Dr. Fedor L. Senger, 1912, and Dr. John J. Wittmer, 1922, were vice-chairmen in charge of alumni contributions.

The development fund will be used to pay larger professional salaries, to provide departments with more technical assistance, and to strengthen the teaching, research, and service program in other ways. A committee of nearly two hundred under Dr. Rathbun's leadership sought contributions from business firms, members of organized groups, and the general public, as well as members of the medical profession. Gifts from business interests totaled $13,158. Contributions by the general public totaled $18,592, and the medical profession gave $10,368.

The effort represented the first step toward building up an annual fund of at least $300,000 to be devoted to the College's educational program. Plans for the development program were announced last spring by Dr. Jean A. Curran, president.

THE FIRST REAL SHOES

The first steps of babies mean that they are coming of age—of an age when greater care in the choice of footwear must be taken, for the first "real shoes" will play an important role in developing posture and good healthy feet for the future.

The Pediforme sizes for the youngest members of the family are not merely shoes of graded widths and lengths—they have been designed to fit individual requirements to assure strong support yet freedom for natural growth.

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Supplied in capsules only for children—each capsule contains 1½ grs. of Theophylline Sodium Acetate, ¼ gr. of Ephedrine Sulfate and ¼ gr. of Phenobarbitol Sodium. Available on prescription only in bottles of 100 capsules.

*A New Type of Medication to be used in Bronchial Asthma and other Allergic Conditions.—*New Eng. J. Med.* 223:843-846, 1940.

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Health News

Public Health Association Holds Wartime Conference

The Wartime Public Health Conference of the American Public Health Association was held on October 11 to 14 at the Hotel Pennsylvania in New York City. More than 3,000 authorities on public health, including leaders in the Army, Navy, and the United States Public Health Service, as well as many leading representatives from the United Nations, participated in the comprehensive program of scientific sessions and discussions.

The conference adopted the slogan "Health Is Global" to point up the necessity for coping with health problems from the international as well as from the national point of view.

Meetings of the Public Health Association's governing council, the American School Health Association, and the American Social Hygiene Association were held in conjunction with the Conference. There was a symposium on cancer control, and conferences of state and provincial public health laboratory directors, state sanitary engineers, and teachers of preventive medicine, and an inter-American conference on health education. Dr. Clarence C. Little, managing director, American Society for the Control of Cancer, delivered an address on cancer research.

Mayor Fiorello H. La Guardia addressed the general session. Dr. Ernest L. Stebbins, New York City Commissioner of Health, and Dr. Edward S. Godfrey, Jr., New York State Commissioner of Health, delivered addresses of welcome. Dr. Felix J. Underwood, Secretary of the State Board of Health, of Jackson, Missouri, and president-elect of the Public Health Association, spoke on "Planning Today for Public Health Administration Tomorrow."

Brig. Gen. David N. W. Grant, air surgeon of the Army, addressed the meeting on the convalescent and rehabilitation training program in the Army Air Force. Homer Folks, secretary of the State Charities Aid Association, spoke on "Health is Social Security." Lt. Col. Arthur P. Long, of the Office of the Surgeon General, Army Service Forces, had as his subject "immunization in the Army." Professor V. P. Sydenstricker of the University of Georgia School of Medicine led the panel in the maternity and child health sections.

Dr. Thomas Parran, Surgeon General, Public Health Service, addressed the meeting on "Strategy Against Global Spread of Disease," and urged the establishment as soon as possible of a permanent international health organization.

Dr. W. A. Sawyer, director of the International Health Division, Rockefeller Foundation, discussed the possible danger of the introduction of yellow fever and classic typhus in the United States. Prof. Henry E. Meleney of New York University College of Medicine described public health aspects of certain helminthic, protozoan, and mycotic infections resulting from the war. Dr. Martha M. Eliot, assistant chief, Children's Bureau, Department of Labor, reported on a year's experience with the administration by public health agencies of a medical care program for wives and infants of men in service.

The first report on the results of penicillin treatment in early syphilis was presented by Dr. John W. Mahoney, director, Venereal Disease Research Laboratory, Marine Hospital, Staten Island. Dr. Hugh Macdonald Sinclair, Dean of Arts, Magdalen College, Oxford University, spoke on "Wartime Nutrition in England as a Public Health Measure." Dr. Felix Hurtado, Under-Secretary of Health, Cuba, discussed "Hemispheric Horizons for the Future," and Dr. Frank G. Boudreau, director, Milbank Memorial Fund, addressed the meeting on the food and nutrition policy here and abroad.

Dr. Allen W. Freeman, professor of public health administration, Johns Hopkins University, and president of the American Public Health Association, presided at the general session. Dr. Frank A. Calderone, deputy commissioner, New York City Department of Health, is chairman of the war health information committee.

Because disease knows no boundaries and the air plane has made close neighbors of even most distant countries, Dr. Calderone said, health directors of the United States and the United Nations are eager to join hands in the fight against disease wherever it exists.

The health directors of Great Britain, the Soviet Union, China, Egypt, Australia, and seven Latin-American countries, Dr. Calderone announced, have sent messages urging "thinking of health protection in international terms to forestall breakdowns in public health that may reach catastrophic global dimensions as a direct result of the devastation caused by the war."

The newly organized School Health section of the American Public Health Association met on October 12. Workshops have been set up to study the problems of school health in rural communities, small towns, and cities. A child care program was urged by Dr. Leona Baumgartner, chairman of the school health section.

Dental Hygienists Sought by Department of Health

Commissioner Ernest L. Stebbins has announced that an opportunity to cooperate in an educational and controlled dental program is being offered by the Department of Health to dental hygienists. At present there are 15 vacancies, throughout the five boroughs, for dental hygienists who are licensed and registered in New York State. Experience is not essential.

The positions pay $1,260 a year to start, with sick leave and vacations. Application should be made to Dr. Harry Strusser, Chief, Dental Division, Room 322, Health Building, 125 Worth Street, Manhattan. Telephone WOrth 2-6900, Extension 232.

OH MY!

The man who was notorious for absentmindedness smiled up at the boss: "Well, I guess I am surprising everybody today. I haven't mislaid or overlooked anything all morning."

"No," growled the boss, unimpressed, "but I just want to remind you that this was your day off."

THE FIRST REAL SHOES

The first steps of babies mean that they are coming of age—of an age when greater care in the choice of footwear must be taken, for the first "real shoes" will play an important role in developing posture and good healthy feet for the future.

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Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N. Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and interest to our readers.

RECEIVED

Reconstructive Surgery of the Eyelids. By Wendell L. Hughes, M.D. Quarto of 160 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Cloth, $4.00.

Oral Diagnosis. By Kurt H. Thoma, D.M.D. Second edition, revised. Octavo of 495 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Cloth, $6.75.

A Guide to Practical Nutrition. A series of articles on nutrition sponsored by the Committee on Nutrition and Deficiency Diseases of the Philadelphia County Medical Society. Edited for the Committee by Michael G. Wohl, M.D., and John H. Willard, M.D. Octavo of 98 pages. Reprinted from *Philadelphia Medicine*, 1941–1942. Philadelphia, Philadelphia County Medical Society, 1943.

Nervousness, Indigestion and Pain. By Walter C. Alvarez, M.D. Octavo of 488 pages. New York, Paul B. Hoeber, Inc., 1943. Cloth, $5.00.

Biochemistry for Medical Students. By William Veale Thorpe. Third edition. Octavo of 476 pages illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $4.50.

Proceedings of the Rudolf Virchow Medical Society in the City of New York. Volume 1, 1942 Edited by the Publication Committee: Franz M. Groedel, M.D., and Bruno Kisch, M.D. Octavo of 72 pages. New York, Brooklyn Medical Press, Inc., 1943. Paper, $1.00.

An Introduction to Medical Mycology. By George M. Lewis, M.D., and Mary E. Hopper, M.S. Octavo of 342 pages, illustrated. Chicago, The Year Book Publishers, 1943. Cloth, $6.50.

The Mind of the Injured Man. By Joseph L. Fetterman, M.D. Octavo of 260 pages, illustrated. Chicago, Industrial Medicine Book Co., 1943. Cloth, $4.00.

Handbook of Tropical Medicine. By Alfred C. Reed, M.D., and J. C. Geiger, M.D. 16 mo. 188 pages. California, Stanford University Press, 1943. Paper, $1.50.

Fundamental Exercises for Physical Fitness. By Claire Colestock and Charles L. Lowman, M.D. Octavo of 314 pages, illustrated. New York, A. S. Barnes & Co., 1943. Paper.

The Compleat Pediatrician. By Wilburt C. Davidson, M.D. Fourth edition. Octavo of 256 pages. Durham, N. C., Duke University Press, 1943. Cloth, $3.75.

Synopsis of Tropical Medicine. By Sir Philip Manson-Bahr, M.D. Duodecimo of 224 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $2.50.

Microscopic Technique in Biology and Medicine. By E. V. Cowdry. Octavo of 206 pages. Baltimore, Williams & Wilkins Co., 1943. Cloth, $4.00.

Body Poise. By Walter Truslow, M.D. Octavo of 312 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $4.50.

Fractures and Dislocations for Practitioners. By Edwin O. Geckeler, M.D. Third edition. Octavo of 361 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $4.50.

The Medical Clinics of North America. Boston Number. September, 1943. Octavo of 245 pages. Philadelphia, W. B. Saunders Co., 1943. Six numbers a year. Cloth, $16 net; paper, $12 net.

Micrurgical and Germ-Free Techniques. Their Application to Experimental Biology and Medicine. A Symposium. Edited by James A. Reyniers. Octavo of 274 pages, illustrated. Springfield, Ill., Charles C Thomas, 1943. Cloth; $5.00.

Biomicroscopy of the Eye. Volume 1. By M. L. Berliner, M.D. Quarto of 709 pages, illustrated, including 40 pages of color plates. New York, Paul B. Hoeber, Inc., 1943. Cloth, $17.50.

Clinical Diagnosis by Laboratory Examinations. By John Kolmer, M.D. Octavo of 1,239 pages, illustrated. New York, D. Appleton-Century Co., Inc., 1943. Cloth, $8.00.

REVIEWED

Atlas of Obstetric Technic. By Paul Titus, M.D. Octavo of 180 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Cloth, $7.00.

As stated by the author, "the scope of the book is broad so that it may be of interest to both the general practitioner, as also to the specialist." This is largely accomplished, for the text covers all phases of obstetric operations.

In the treatment of a twisted ovarian cyst complicating pregnancy the author frequently conserves the tube on the affected side. The chapter on abortion is most thorough and includes illustrations of anterior vaginal hysterotomy. Ectopic pregnancy is reviewed along conservative lines. Induction of labor by the bougie bag and Dührssens incisions is well illustrated. The section on forceps is complete and illustrates the use of Barton and Kielland forceps for high transverse arrest. Repairs of different birth injuries incidental to delivery follow the usual approved methods. Caesarean section operations, the classical, low-flap, transperitoneal exclusion, Porro, and the Waters technic are shown. The varied technics of tubal sterilization are reviewed. The final chapter deals with sterility and discusses the technic of hysterosalpingography and varied tubal plastic operations.

The text is brief, but it is adequate because of the large number of illustrations. This book may really be considered a picture treatise of operations for the pregnant woman and adequately fulfills the intention of the author.

SAMUEL A. WOLFE

[Continued on page 2121]

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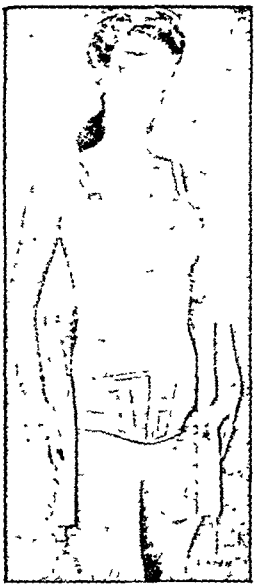
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If you remember your history, you will recall that Cos was the birthplace of the Father of Medicine, Hippocrates. It was also the birthplace of other celebrities in peaceful sciences.

Cos, as Greek as Athens, and populated mostly by Greeks with a sprinkling of Turks and Jews, has been a battleground almost as much as any spot on earth. In hardly more than a century, it has changed hands several times. In 1821 it was liberated from the Turks during the Greek Revolution but returned to them when peace was signed in spite of the protests of the Greek inhabitants. In 1912, it was occupied by the Italians during the Italo-Turkish War and has been Italian territory ever since.

JELLY FOR GLOVES NEW RUBBER-SAVING WRINKLE

Latest note on how to make rubber last as long as possible comes in an announcement in the *Canadian Medical Association Journal* of a new formula for a lubricating jelly for surgeons' rubber gloves, catheters, and other rubber supplies.

The formula was worked out by Prof. D. E. MacKenzie, assistant professor of pharmacy in the Ontario College of Pharmacy, at the request of the Canadian Hospital Council. It calls for starch, distilled water, sodium lactate, and mercuric oxycyanide.

The new jelly is needed not only because of the rubber shortage but because of the increasing shortage of gums and glycerin used previously in nongreasy lubricating jellies for rubber supplies. The new jelly, which can be made in any hospital pharmacy for about 50 cents a pound, can be sterilized under steam pressure, does not deteriorate on storage, does not harm either rubber or human tissues, and contains an antibacterial substance.

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[Continued from page 2118]

Victories of Army Medicine: Scientific Accomplishments of the Medical Department of the United States Army. By Edgar Erskine Hume, Col., M.C., U.S.A. Octavo of 250 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943.

One can highly commend this book, for the factual material within it, for the way it is written, and for the great credit which it provides for the splendid progress made by the Army Medical Corps from its inception until the present day.

The names of Gorgas, Reed, and Beaumont are but a few of the Army medical men who have contributed so much to the medicine of the Army and of civilian life. The great progress made in the treatment of typhoid fever, yellow fever, plague, and venereal disease are but a few of the Army accomplishments. Cholera and dysentery owe their conquest to the work of the Army Medical Corps.

These men show great versatility, particularly in work done by them in meteorology and ornithology. Even psychiatry is not neglected by the Army medical men and, of course, the medical aspects of gas warfare are almost entirely within the domain of the medical corps.

All hail to the author of this book, to the men whom he discusses as workers in the field, and to the work itself!

BENJAMIN M. BERNSTEIN

The Practice of Refraction. By Sir Stewart Duke-Elder, M.D. Fourth edition. Duodecimo of 328 pages, illustrated. Philadelphia, Blakiston Co., 1943. Cloth, $4.50.

This small work on refraction is one of the most satisfactory published in the English language. As the author states, it was designed for the medical student as well as for the practitioner. It is also useful for a general review of the subject of the resident who is beginning his life work.

Duke-Elder is careful to avoid formulas and highly theoretic explanations which confuse rather than help the beginner in this technical field. When one realizes that this small work is a sort of abstract of the author's celebrated four-volume textbook, it becomes all the more useful.

The only suggestion the reviewer can make for improvement would be the inclusion of specific references. Although Duke-Elder quotes numerous contributors, there is no bibliography to which students can turn for more detailed study.

The book is well illustrated, the descriptions are clear, and the material is up to date.

JOHN N. EVANS

Medical Malpractice. By Louis J. Regan, M.D., LL.B. Octavo of 256 pages. St. Louis, C. V. Mosby Co., 1943. Cloth, $5.00.

A great deal of research and thought has gone into the preparation of this discussion of medical malpractice. Many of the author's observations regarding the cause of such cases, and his suggestions as to how they may be prevented, are excellent.

The author is a California doctor-lawyer, and his interpretation of the law does not conform in every instance to that of New York State.

Particularly valuable is the chapter entitled "Medical Prophylaxis," reporting a large number of actual litigated cases and the lessons to be drawn therefrom.

WILLIAM F. MARTIN

Discovering Ourselves: A View of the Human Mind and How It Works. By Edward A. Strecker,

[Continued on page 2124]

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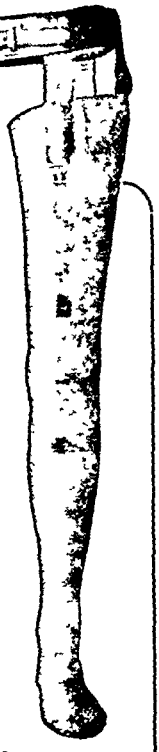
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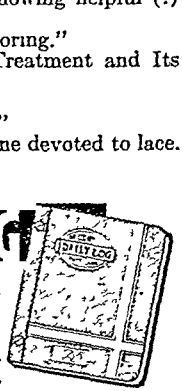
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[Continued from page 2121]

M.D., and Kenneth E. Appel, M.D., in collaboration with John W. Appel, M.D. Second edition. Octavo of 434 pages. New York, Macmillan Co., 1943. Cloth, $3.00.

This book is written by a group of American psychiatrists who have assumed leadership in their respective fields. It aims to present in readable and nontechnical language the commonly accepted concepts of the newer psychology which have been found useful, helpful, and understandable by patients. It presents the essentials of dynamic psychology and the principles of psychiatry and mental hygiene.

The book is highly recommended to students, educators, the clergy, and all others who are interested in human behavior. The physician will find the book a source for guidance for his own patients.

IRVING J. SANDS

Allergy, Anaphylaxis and Immunotherapy: Basic Principles and Practice. By Bret Ratner, M.D. Octavo of 834 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $8.50.

Instead of writing just another book on allergy, the author has very wisely approached the subject from its fundamental starting point—serum allergy and the antigen-antibody mechanism. As a result, his book is valuable as a reference volume to immunologists, allergists, and practicing physicians. The material in the book is well presented and sound. Practical and detailed directions are given for the use of serums, allergens, antitoxins, and the sulfonamides. The dangers incurred by the unintelligent use of these agents are stressed. The book is recommended.

EDWIN P. MAYNARD, JR.

The Function of the Orgasm. Sex-Economic Problems of Biological Energy. By Wilhelm Reich. Translated from the German by Theodore P. Wolfe. Octavo of 368 pages. New York, Orgone Institute Press, 1942. Cloth, $3.00.

In this book the author combines a moderate amount of careful observation with occasional flashes of brilliant intuition and many unwarranted generalizations about pharmacology, physiology, politics, and even physics.

Although the pharmacology and physiology are in many places glib and superficial, the physics naïve, and the politics extremely controversial, some of the psychologic material is undoubtedly sound.

The principal value of the book lies in its recalling attention to the importance of the adult sexual adjustment as well as the infantile sexual history in the pathogenesis of the neuroses.

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THE REAL TWO-FRONT WAR—The fighting men in the South Pacific have been fighting a two-front war almost since the first action in that arena of the World War began. Malaria, with its estimated 800,000,000 victims throughout the world, has been as relentless an enemy as the little yellow men and the length of the war in the Pacific may well be determined by the success of our Army and Navy medical staffs in controlling this disease. The one consolation is the fact that the Japanese are plagued by the handicap as much as are our men, in spite of their having practically control of the entire supply of quinine.

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CAPT. MARION C. LOIZEAUX, MC, USA.—The first woman physician to hold a commission in the Army Medical Corps in the European area of the war, Dr. Marion C. Loizeaux of Wellesley, Mass., and New York City, received her commission as captain and was assigned to duty with the Women's Army Corps.

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A NEW EPIDEMIC—The Smith-Connally Anti-Strike Law prohibits strikes until after a thirty-day cooling off period following a Government-conducted strike vote. It does not prohibit a man from becoming too sick to work, so—when the WLB permitted the dismissal or transfer of a number of milk drivers in New York City, a sudden epidemic of sore arms and backs, colds and asthma broke out among members of the Milk Wagon Drivers Union. Luckily the WLB found a quick "cure" in a threat of the strike jeopardizing benefits of severance pay, seniority and transfer rights.

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TYPHOID CARRIERS—A report on typhoid fever by Dr. George Schmelzel of the Los Angeles Health Department, highlighted grandmothers. According to his findings, of the area's twenty-one cases of typhoid in the last sixteen months, eleven were traced to grandmothers as carriers.

* * *

GETTING AWAY CLOSER—So surgeons may magnify at a distance the region he is probing, the familiar telephoto lens of cameras has been put in reverse. The common magnifying glass must be within an inch or two of the object in order to magnify, and sometimes a surgeon or eye physician could use a magnifier that works at a distance, so the new telephoto magnifier permits the use of instruments with greater freedom.

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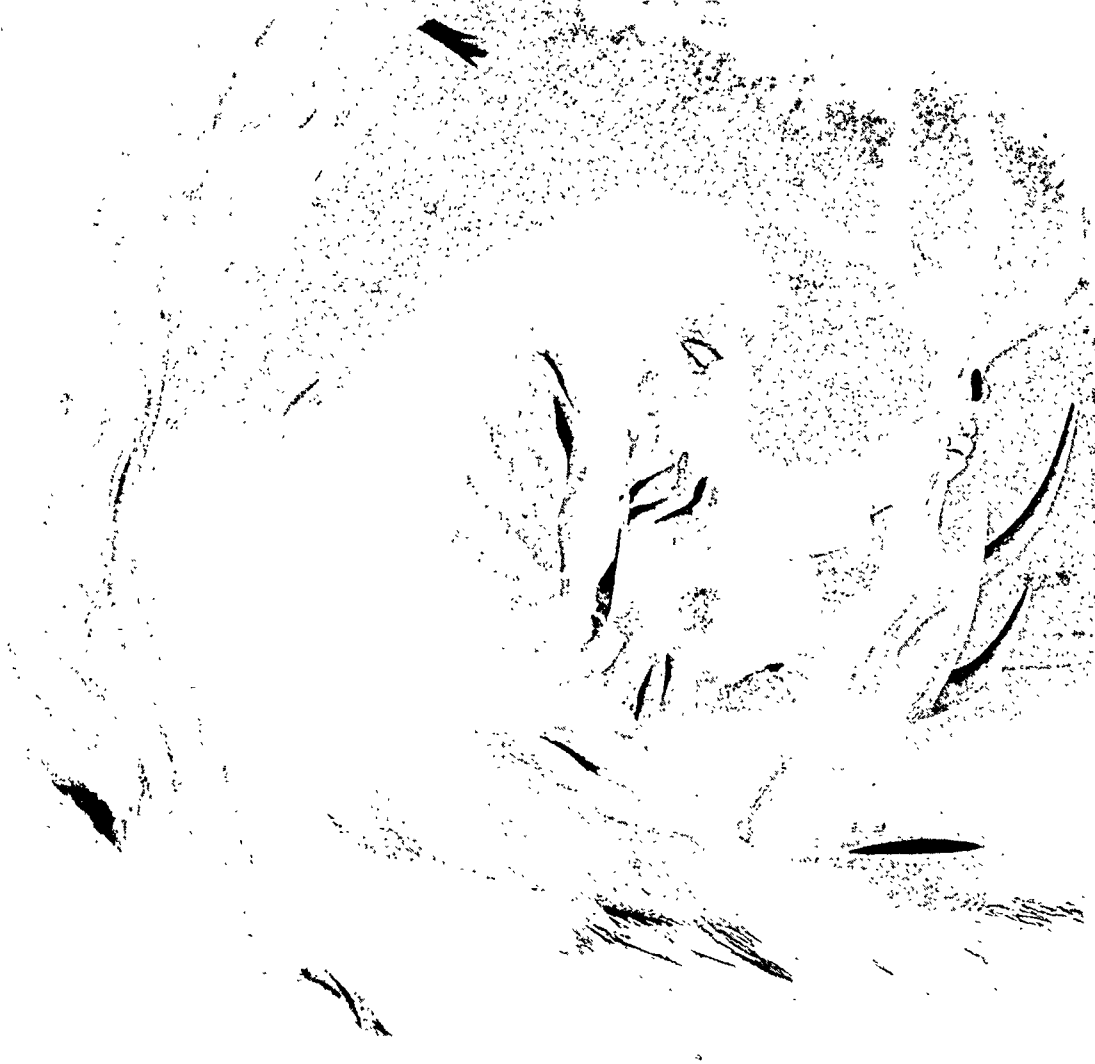
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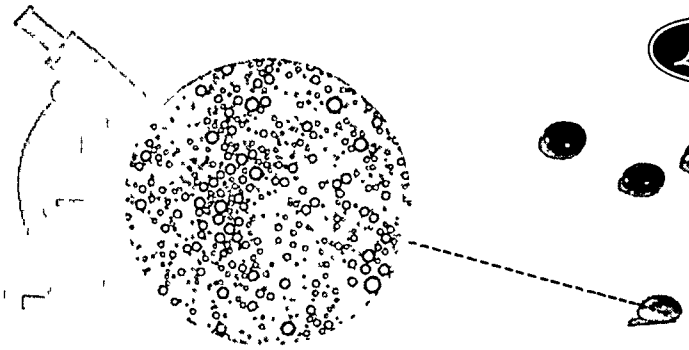
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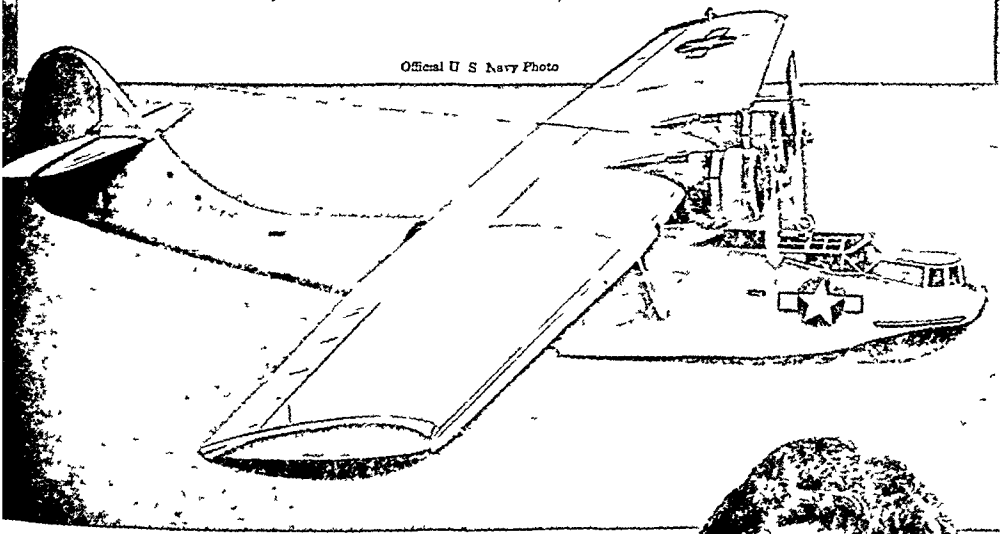
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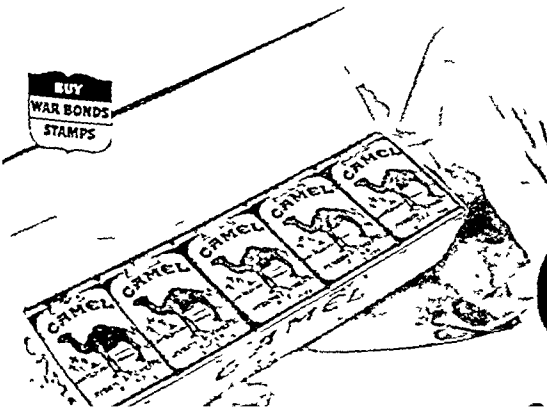


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New reprints available on cigarette research—Archives of Otolaryngology, February, 1943, pp 169 1"3—March, 1945, pp 404-410 Camel Cigarettes, Medical Relations Division 1 Pershing Square, New York 1", N Y





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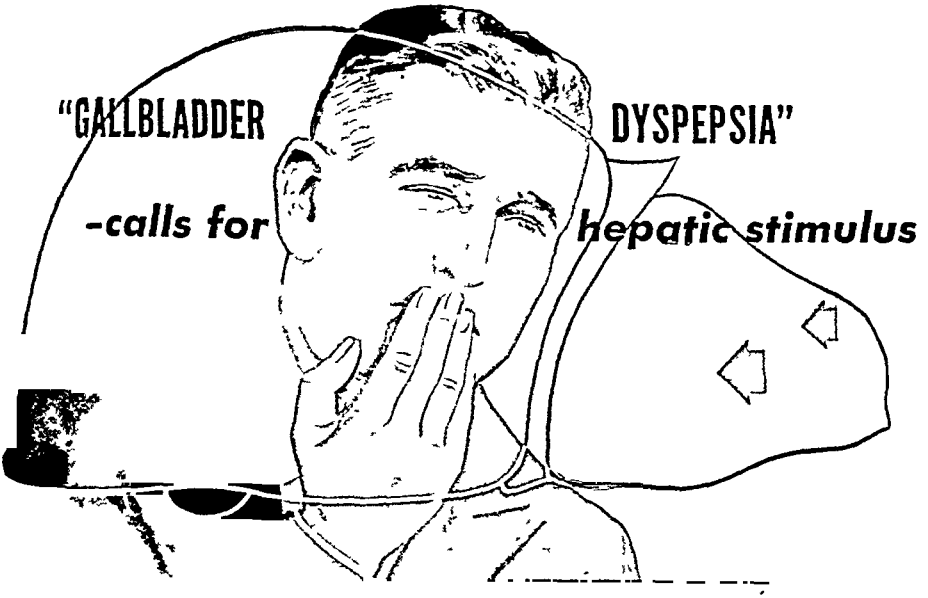
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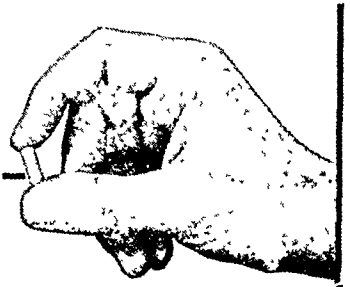
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1940

Bulletin of the Johns Hopkins Hospital
Journal of the American Chemical Society
Proceedings of the Society for Experimental Biology and Medicine

1941

American Journal of the Medical Sciences
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Transactions of the Association of American Physicians
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1942

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FRIEDLÄNDER'S BACILLUS TYPE B INFECTIONS
POSTOPERATIVE MIXED PNEUMONIAS
HEMOLYTIC STREPTOCOCCAL INFECTIONS (including bacteremias)
STAPHYLOCOCCAL INFECTIONS (including bacteremias)
OSTEOMYELITIS
GENITO-URINARY INFECTIONS (*E. coli, A. aerogenes, Shigella dispar*, streptococci, staphylococci)
MENINGOCOCCAL MENINGITIS
STAPHYLOCOCCAL MENINGITIS
PNEUMOCOCCAL MENINGITIS
H. INFLUENZAE MENINGITIS
MENINGITIS OF MIXED OR UNKNOWN ETIOLOGY
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MIXED UPPER RESPIRATORY INFECTIONS and
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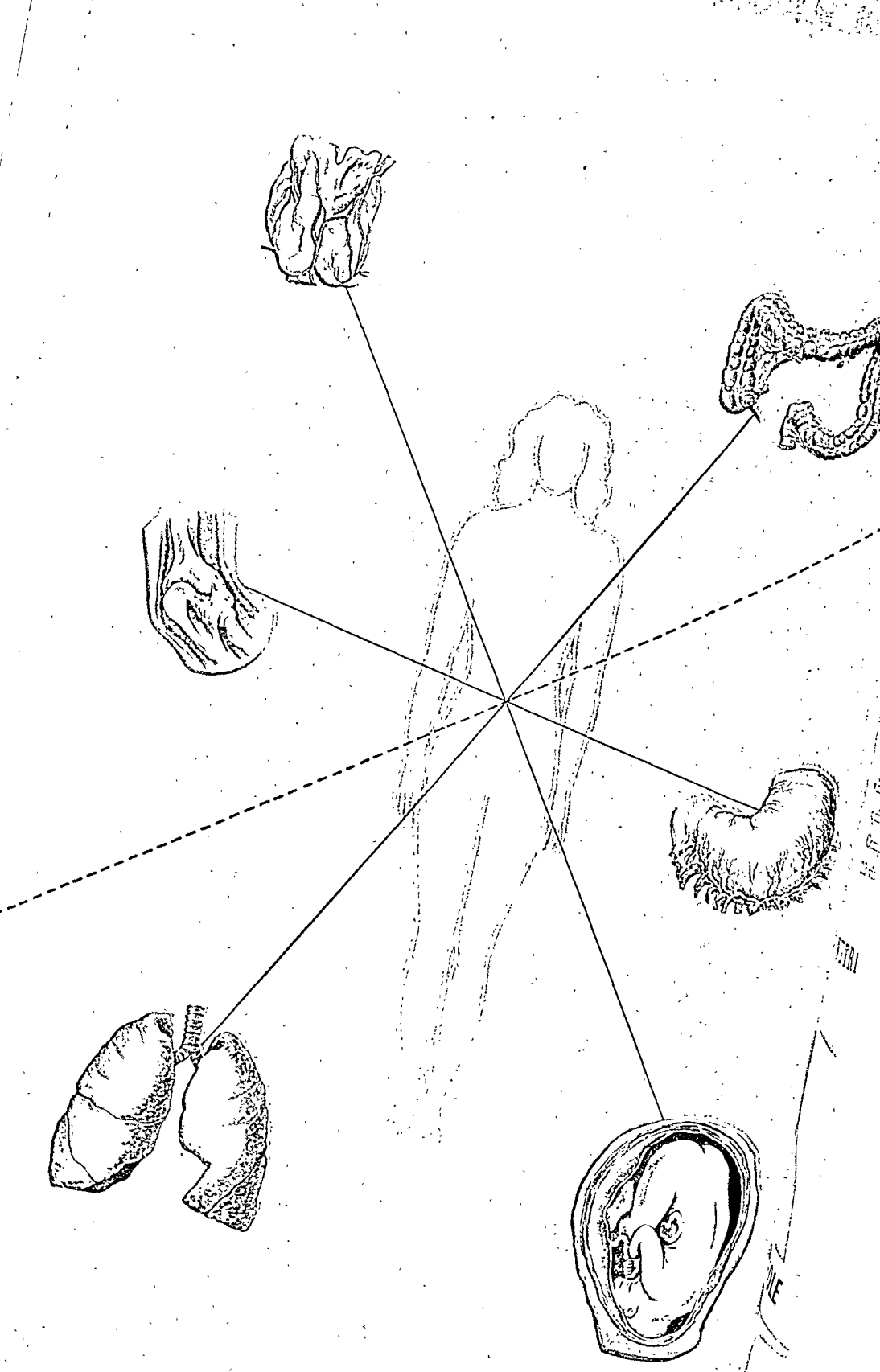
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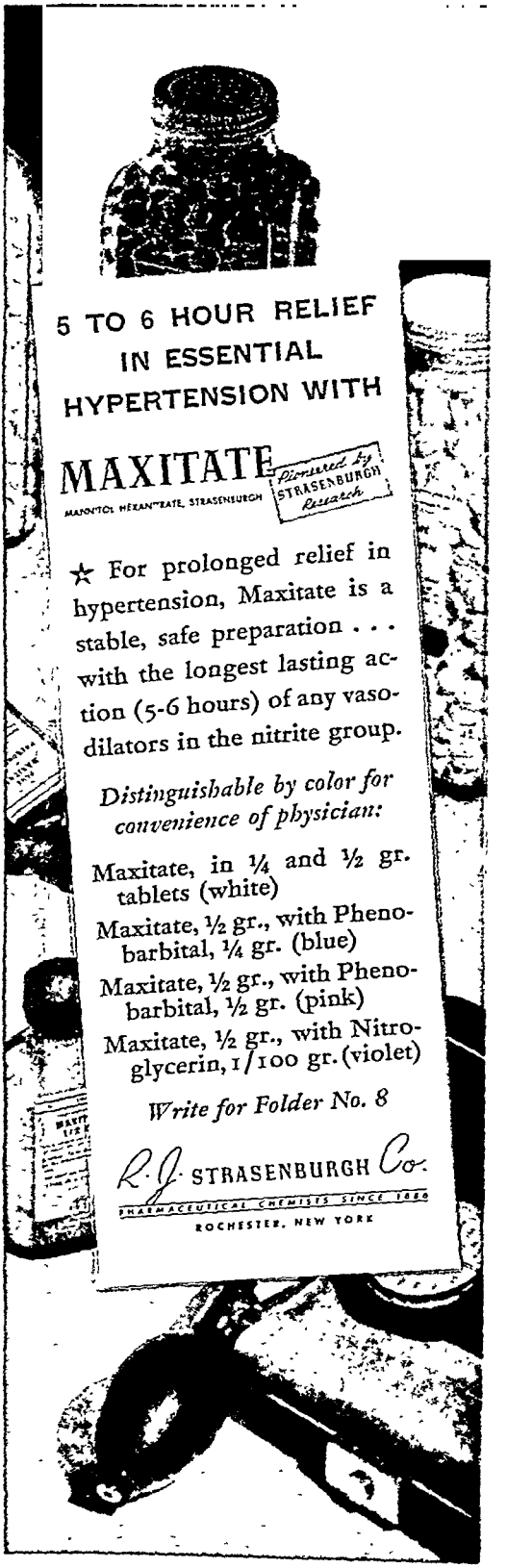
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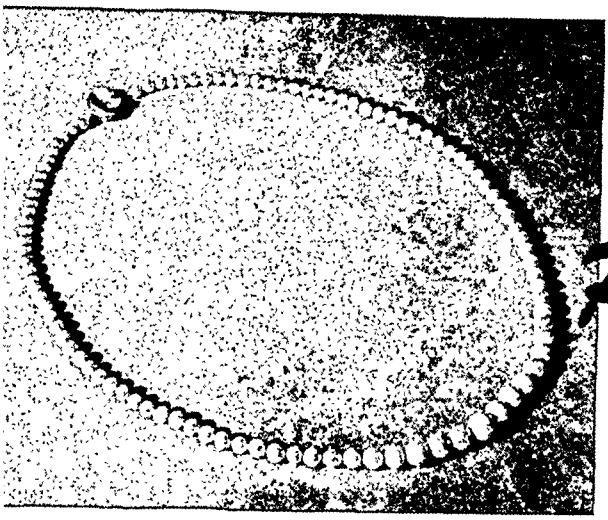
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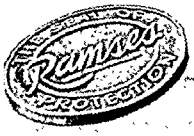
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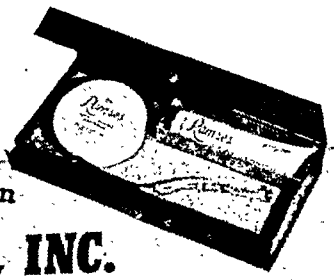
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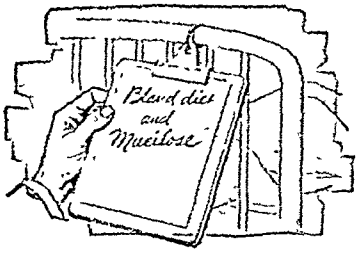


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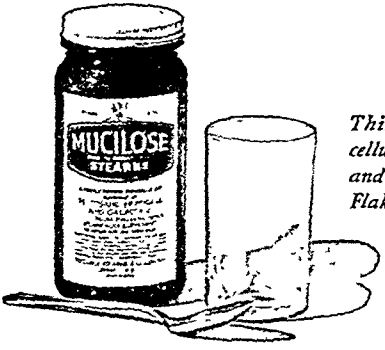
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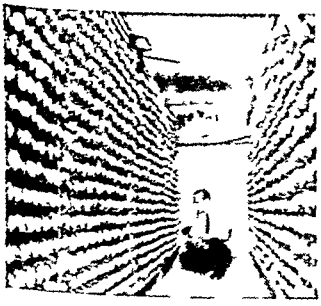
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PENICILLIN stands today the most remarkable antibacterial agent that modern medicine has evolved. It is miraculously effective in the treatment of staphylococcic, gonococcic, pneumococcic, and hemolytic streptococcic infections. It is of enormous benefit in cases of infection that are resistant to sulfonamides. But, because of its scarcity and the needs of our military forces, civilian requirements must wait greater production of penicillin. The illustrations show the surface culture method of production, which enables Reichel Laboratories to produce maximum quantities of penicillin to meet the urgent demand.



First stage in production of penicillin at Reichel Laboratories—one of the leading U S laboratories to undertake production of the new "wonder" substance Seed spores of the mold *penicillin notatum* are introduced into the culture medium



Penicillin production requires a precise control of the temperature at all times Inoculated culture bottles are stored in constant temperature air-conditioned rooms at the Reichel Laboratories Here the mold grows slowly on the surface of the culture media in the bottles



The "mat" of the mold excretes penicillin Note curious horse tooth" formation of outer edge of mat Entire resources of the Reichel Laboratories today are devoted principally to production of penicillin and blood plasma for U S military needs



After 10 days' incubation each bottle contains the mold growth The droplets or "pearls" on the mold "mat" are rich in penicillin which Reichel Laboratories extract in tiny quantities by means of intricate separation and refinement processes

Photos on this page by Margaret Bourke White



Frozen liquid penicillin is reduced to dry yellow powder in dome driers at Reichel Laboratories Development of penicillin is a superb example of cooperation between industrial laboratories and Government agencies.

REICHEL LABORATORIES, INC.
KIMBERTON, PA.

DIVISION Wyeth INCORPORATED

Calcium Action
Bromine Sedation

CALCIBRONAT

Ampuls 10 cc.: Boxes—5, 20 and 100
Effervescent tablets: Tins—10 and 50
Granules (non-effervescent): Tins—100 and 500 Gm.

High ratio Ca: Br—1:2
Less danger of bromism.
Palatable. Well tolerated.

SANDOZ CHEMICAL WORKS, INC. NEW YORK—SAN FRANCISCO

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WHEN YOU NEED A GOOD SUPPORT FOR REDUCIBLE HERNIA— may we suggest the advantages of "custom-made" Protection, designed to meet the described needs of each particular case? Physicians, who know from experience, can tell you that Rice "custom-made" Supports for reducible HERNIA are truly different and that our methods are dependable. With dozens of different styles, shapes and types of pads at our disposal and with a full realization of our responsibility to those who put their faith in us—we respectfully offer our services for your approval. Descriptive literature and measurement charts on request.

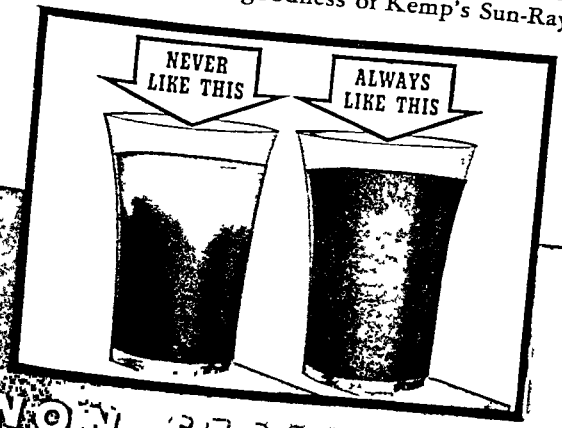
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Getting the Vitamins

OUR BOYS IN '17 DID NOT HAVE



● Difficult to realize how far we have progressed in nutrition since World War I! For instance, tomato juice! Doctors knew about its anti-scorbutic value and widely recommended the juice of canned tomatoes for infant feeding. But tomato juice as we know it today was not commercially available until ten years after World War I, when Kemp brothers introduced their now famous Kemp's Sun-Rayed. ...Tomato juice is being enjoyed by our "boys" everywhere, and we at home are glad to share with them the whole-tomato goodness of Kemp's Sun-Rayed.

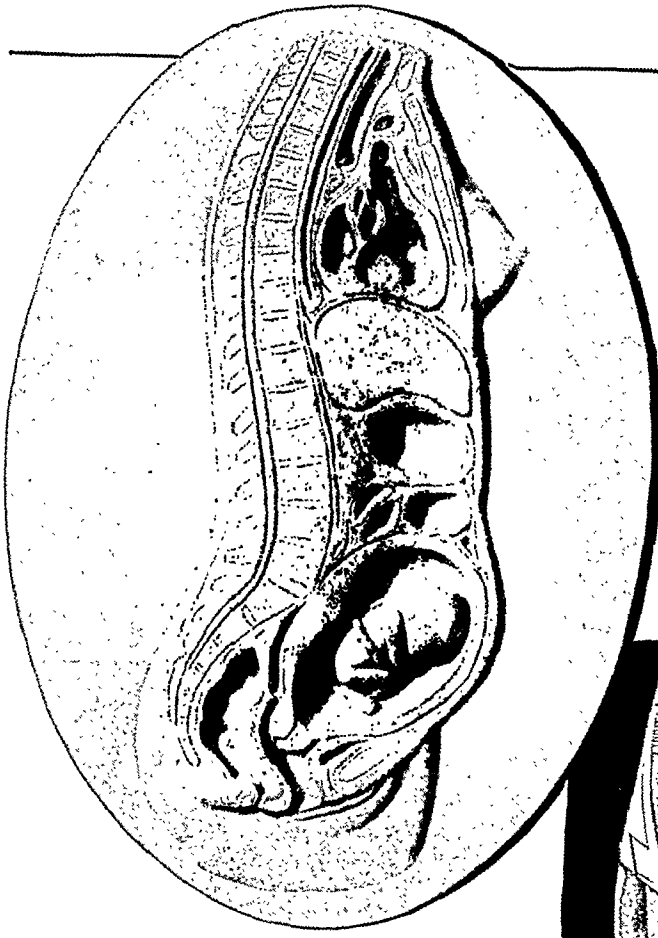


NON-SEPARATING

Packed by
THE SUN-RAYED CO.
Frankfort, Indiana
• • •
New York Agent
SEGGERMAN NIXON CORP.
111 8th Ave.



ANATOMY OF PREGNANCY

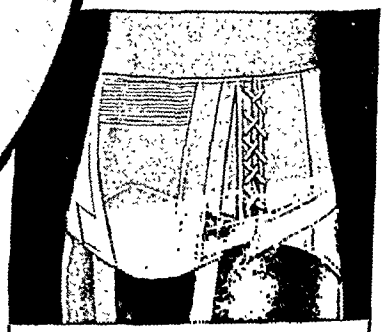


Four Lunar Months' Pregnancy

One of a series of life-size sculptured models made for S. H. Camp and Company by Charlotte S. Holt.

●

4 Lunar Months — Abdominal protrusion beginning. Uterus becomes abdominal organ. Fundus 4 cm. below umbilicus. Approximate time of quickening. Normal visceral relationship. No appreciable change in body mechanics.



The clinical value of Camp Prenatal Supports and Breast Supports has for many years been recognized as anatomically correct and efficient. They are moderately priced and easily adjusted by the Camp Patented Adjustment feature.

IT is during the fourth month that the patient is usually sent for her support, although a breast support is usually advocated at the beginning of pregnancy.

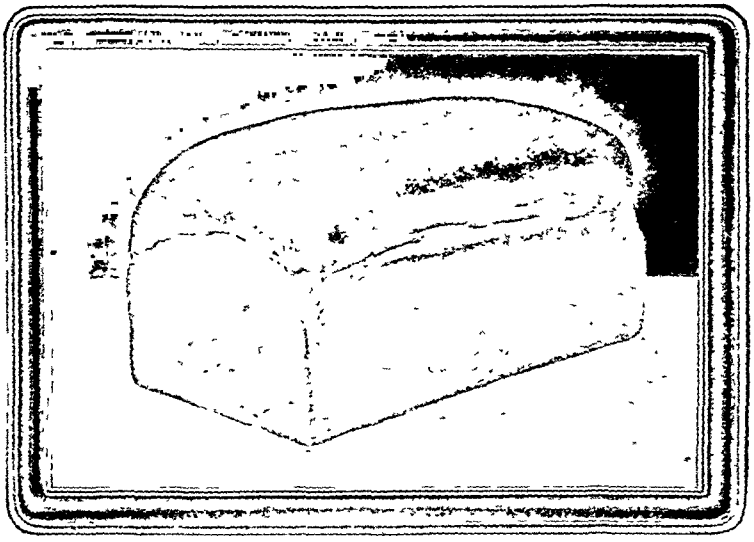
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ANATOMICAL SUPPORTS

S. H. CAMP & COMPANY • Jackson, Michigan

Offices in CHICAGO • NEW YORK • WINDSOR, ONTARIO • LONDON, ENGLAND

World's Largest Manufacturers of Anatomical Supports



FRONT AND CENTER IN THE FOOD PICTURE

FOOD has become a major concern. Is America to fare well or badly? Is good nutrition out for the duration? Will patients be able to obtain readily the foods you prescribe?

Bread as it stands today gives an answer. For it is a finer food today than it has ever been before. It is plentiful. It is inexpensive.

Even those who used to find fault with white bread now praise it.

The government sets bread up in one of the basic seven food groups which should be eaten every day.

Why? Because modern enriched white bread is a storehouse of food-energy and stepped-up nutritional values.

Because it contains abundant carbohydrates to be turned into energy so necessary these busy days.

Because it provides important amounts of thiamin, riboflavin, niacin, important elements of the vitamin B complex.

Because it contains calcium and iron.

Because it provides protein — with a good supply of threonine, an amino-acid most recently proved essential to life and growth. In fact, the threonine content of bread compares favorably with that of those excellent protein foods, meat and milk.

This is why bread is so important in the present-day food picture. It is why bread may be prescribed and recommended with full assurance that more than ever it is basic in every normal diet.

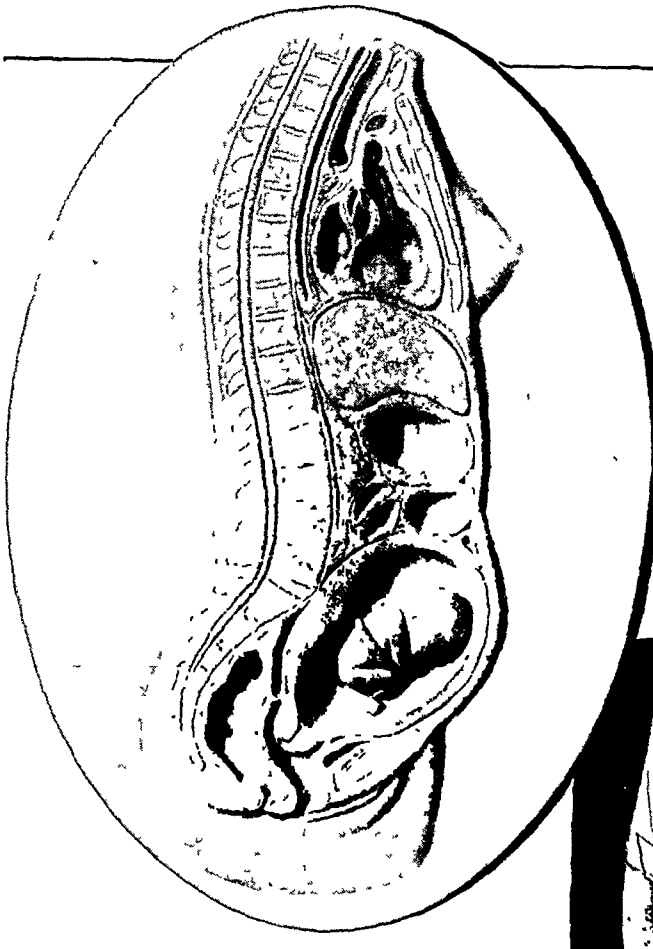
ACCEPTED FOR ADVERTISING IN PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION

Bread *is basic*

with meals . . . and *in* meals

FLEISCHMANN 1868-1943 — 75 YEARS OF GOOD YEAST FOR GOOD BREAD

ANATOMY OF PREGNANCY

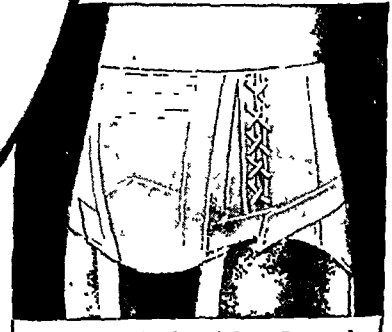


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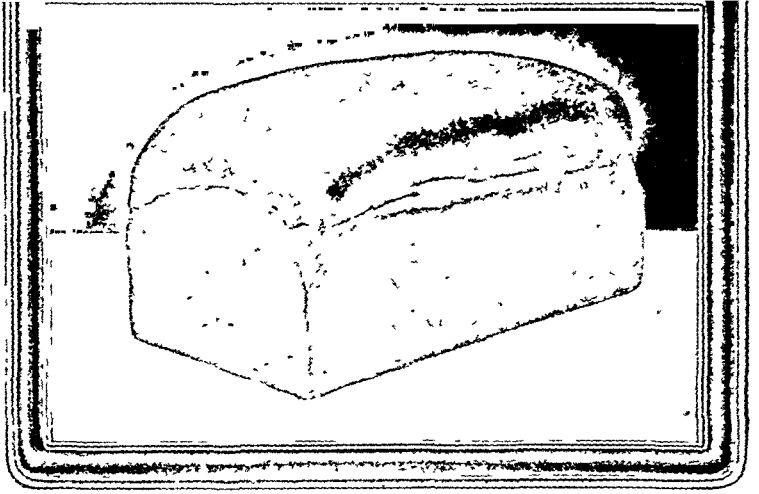
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ACCEPTED FOR ADVERTISING IN PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION

Bread *is basic*

with meals . . . and *in* meals

FLEISCHMANN 1868-1943 — 75 YEARS OF GOOD YEAST FOR GOOD BREAD

Walker vitamins are good vitamins!

When you specify a Walker Vitamin Product, your patient receives a strictly ethical preparation of the finest quality —rigidly standardized for vitamin activity by careful laboratory control . . . and at a consistently economical price. Write for descriptive booklet.



WALKER VITAMIN PRODUCTS, INC.
MOUNT VERNON • • • NEW YORK

SHOES AS THERAPEUTIC AGENTS

No doctor can ignore that shoe therapy is a major factor in the treatment of many foot disorders. In some cases, however, when further medical or surgical treatment is required, the shoes must be adjusted to conform to any changes such treatments make in the shape or size of the feet.

Pediforme shoes are prepared through experienced craftsmen to make the necessary adjustments as prescribed by the orthopedic surgeon or physician in these cases.

With purchases restricted it is readily apparent that substantial shoes, capable of reconstruction or easy adjustment, should be prescribed. For all practical purposes, Pediforme footwear may well be considered in shoe therapy.

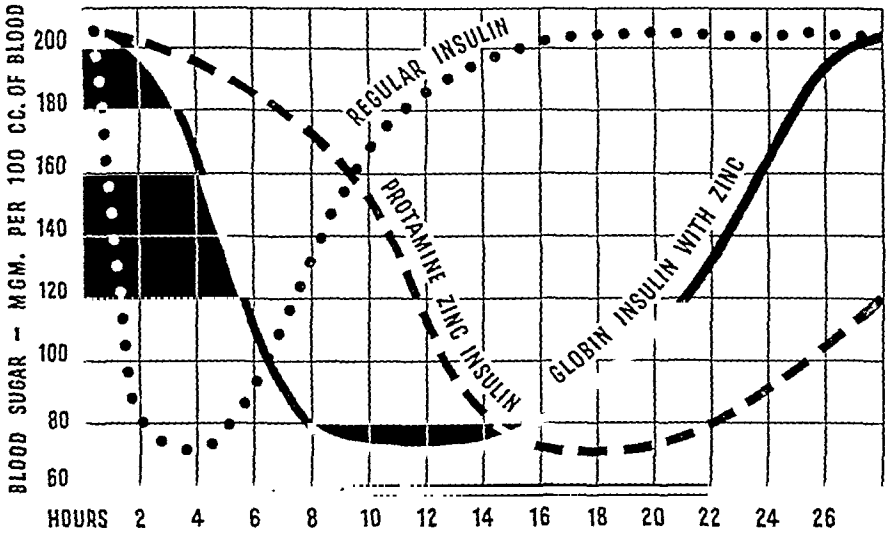
℞ **Pediforme**
FOOTWEAR



A SHOE FOR EVERY MEMBER OF THE FAMILY. . . A SHOE FOR EVERY INDIVIDUAL REQUIREMENT.

MANHATTAN, 36 West 36th St. **NEW ROCHELLE,** 545 North Ave.
BROOKLYN, 322 Livingston St. 843 Flatbush Ave. **EAST ORANGE,** 29 Washington Pl.
HEMPSTEAD, L. I., 241 Fulton Ave. **HACKENSACK,** 299 Main St.

A New Advance in Insulin Therapy



The above diagram shows the effects of comparable doses of various insulins on the blood sugar level of a *fasting* diabetic patient. Note the *intermediate type of action* of globin insulin as compared with regular insulin and protamine zinc insulin.

★ 'Wellcome' brand Globin Insulin with Zinc is a new type of insulin, a clear solution with both *prompt and prolonged* action, developed in the Wellcome Research Laboratories, Tuckahoe, N. Y.

★ One subcutaneous injection daily has been found to control satisfactorily most moderately severe and many severe cases of diabetes.

★ The action of 'Wellcome' Globin Insulin with Zinc conforms to physiologic needs. Its onset of action usually occurs within two hours after injection. When injected in the morning, its strongest action occurs during the day when insulin is most needed; during the night (16 to 24 hours after injection) the action wanes and hence nocturnal insulin reactions are rarely encountered.

★ 'Wellcome' Globin Insulin with Zinc has the advantage of being a *clear solution*, not a suspension.

★ Globin has not been found to be allergenic and consequently 'Wellcome' Globin Insulin with Zinc, in its freedom from producing skin reactions, is comparable to regular insulin.

TRADE MARK **WELLCOME** BRAND

GLOBIN INSULIN

WITH ZINC

Reg. U. S. Pat. Off. 2,161,193

Vials of 10 cc. 80 units in 1 cc.

Literature on request

BURROUGHS WELLCOME & CO. (U.S.A.) INC.

In treating Vitamin B Complex Deficiencies "It is far better to prescribe too much than too little, too soon rather than too late."

SPIES, T. D.:
J. A. M. A. 122:497, June 19, 1943.

PATIENTS exhibiting evidence of nutritional failure require intensive therapy to restore health promptly. Spies stresses these four essential principles of therapy: (1) use of a basic formula; (2) supplementation of this formula with individual vitamins when indicated; (3) adjustment of the diet; and (4) administration of the *natural* vitamin B Complex in addition to diet and therapy.

The basic formula used by Spies and other authorities on nutrition[1] contains 10 mg. of thiamine, 50 mg. of niacin, 5 mg. of riboflavin and 75 mg. of ascorbic acid. This formula is now available to all physicians in Squibb Basic Formula Vitamin Tablets. Individual vitamins are also supplied under the Squibb label for use when indicated.

Natuplex-B,* Squibb Extract of Natural Vitamin B Complex derived from high potency brewers' yeast, is an ideal preparation for use in conjunction with Basic Formula Vitamin Tablets. It is a stable, exceptionally potent extract—*unfortified* and *undiluted*. It makes possible the administration of the *natural* vitamin B Complex in heavier dosage than was formerly considered practicable. An average daily dose of one heaping teaspoonful (10 grams) supplies 6 mg. thiamine; 2 mg. riboflavin; 18 mg. niacin; 1.0 mg. pyridoxine; 4.0 mg. pantothenic acid; 31.25 calories. In 4-oz. and 8-oz. bottles.

[1] Jolliffe, N. and Smith, James, J.: *M. Clin. North America* 27:567, March 1943.

* Natuplex-B (Reg. U. S. Pat. Off.) is a trade mark of E. R. Squibb & Sons.



For literature address the Professional Service Dept., 745 Fifth Avenue, New York 22, N. Y.

E·R·SQUIBB & SONS

Manufacturing Chemists to the Medical Profession since 1858

IMPORTANT ECONOMIES NOW MAKE IT POSSIBLE TO PRESCRIBE THE MOST POTENT ANDROGENIC SUBSTANCES TO A WIDER GROUP OF PATIENTS . . .

because . . .

PERANDREN,* pure synthetic testosterone propionate, has been reduced 10 per cent in price. Being the most effective androgen available for intramuscular administration, this product has assumed greater importance in a growing list of indications and consequent savings are normal reflections of increased use.

because . . .

METANDREN* TABLETS, orally active form of methyltestosterone intended for ingestion therapy, have been reduced by 37½ to 40 per cent. Here, too, the extensive use of this substance in medical practice has made possible production economies rightfully passed on to the patient.

because . . .

METANDREN LINGUETS* are effective in doses ⅓ to ½ less than those required when methyltestosterone is ingested. Absorbed directly through the oral mucosa into the general circulation, this sublingual form of methyltestosterone sidetracks the portal circulation and the liver, thus preventing partial inactivation. Consequently smaller doses can be given with equally uniform results, offering complete and potent therapy at low cost.

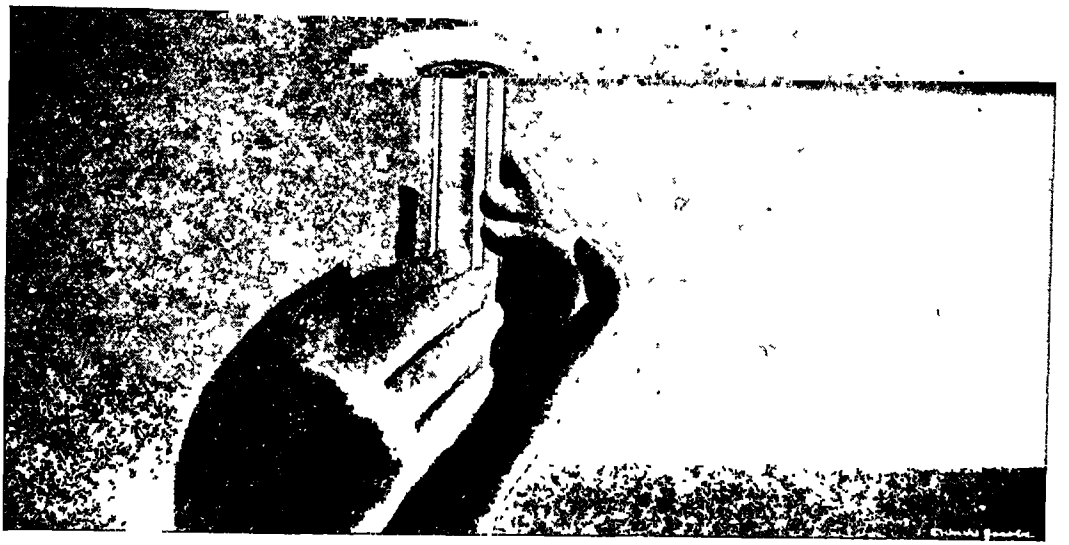
CIBA *Pharmaceutical Products, Inc.*

SUMMIT, NEW JERSEY

*Trade Marks Reg. U. S. Pat. Off.

"Metandren Linguets" identifies the product as methyltestosterone of Ciba's manufacture, for sublingual administration.

Step toward Perfection



CRUDE DRUGS and chemicals procured for the preparation of Lilly products must measure up to highest standards. Assays from outside sources, no matter how reliable, never are accepted without confirmation from the Lilly control laboratories.

Lilly

ELI LILLY AND COMPANY

INDIANAPOLIS 6, INDIANA, U. S. A.

BUY WAR BONDS AND STAMPS

NEW YORK STATE JOURNAL OF MEDICINE

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VOLUME 43 NOVEMBER 15, 1943 NUMBER 22

Editorial

The Well of Righteousness, II

Exemplifying the spirit of the old saying that "to the pure most everything's rotten," the *J.A.M.A.*[1] has accused the NEW YORK STATE JOURNAL OF MEDICINE, without benefit of inquiry and largely as a matter of opinion, of being "lost before the altar of those who give their faith to scientific medicine."

The "Illinois and New York journals," said the *J.A.M.A.*, "continue to be veritable directories of unestablished and unscientific therapy," because they, among others, have not enlisted themselves "in this righteous cause," which created the A.M.A.'s Cooperative Medical Advertising Bureau

Alleging that the *N.Y.S.J.M.* has been "conspicuous almost from the first in . . . . insistence on the profits to be derived from the publication of advertisements of unaccepted products," the *J.A.M.A.* insists that this is due to pressure on the physicians exerted by the business manager of the JOURNAL. For a time, the *N.Y.S.J.M.*, as the *J.A.M.A.* acknowledges, was in the Cooperative. It withdrew because one year's experience showed that the Bureau was in no position to do for the *N.Y.S.J.M.* as complete a job as the JOURNAL could do with its own solicitation of advertising. The *N.Y.S.J.M.* is not only in the unique position of being the second largest official medical journal in the country, but it is also strategically located in the advertising market. It was properly felt by the State Medical Society that the advertising income of the STATE JOURNAL should reflect these natural advantages. The Bureau, being under obligation to seek advertisements for all the state journals, could not emphasize the special advantages of any single state journal. Therefore, our Council directed that the *N.Y.S.J.M.* operate independently of the A.M.A. Cooperative.

There was at no time, and is not now, any dissatisfaction with or desire to minimize the excellent work of the Council on Pharmacy and Chemistry of the American Medical Association or to betray "the good name and prestige of American medicine." To make a holy war out of a plain matter of the inability of the A.M.A. Cooperative to serve fully the *N.Y.S.J.M.* plainly is ridiculous. From 1934 to 1940 the *N.Y.S.J.M.* had pursued the policy of accepting pharmaceutical advertisements only on the basis of acceptance by the Council on Pharmacy and Chemistry of the A.M.A. The Publication Committee in 1940 "considered continuation of this policy wise, though with the reservation that individual products might be acceptable in special instances on their merits even though lacking Council acceptance. It was recognized that the Council of Pharmacy and Chemistry of the A.M.A. necessarily is obliged to live up rigidly to its strict rules in order that no embarrassing precedents be established even in cases where the reason behind the rule may be inapplicable."[2] The Publication Committee of the *N.Y.S.J.M.* has subsequently made its own decisions.

A number of products which never had been passed upon by the Council on Pharmacy and Chemistry were at various times since 1940 carefully considered, and found to have merits for therapeutic use and for clinical trial. Advertisements for them have, therefore, been accepted.

Advertisements of a few products which have been actually rejected by the Council on Pharmacy and Chemistry have been considered deserving of publication either because experience has shown them to be undoubtedly useful, or as deserving clinical trial looking toward future, fully rounded decisions. One such instance is *Argyrol.* The objection of the Council on Pharmacy and Chemistry to accepting advertisements for Argyrol was based on an extravagant claim for this product as an antiseptic. The Publication Committee has accepted advertisements of Argyrol because of its undeniable value and universal acceptance by physicians over the years.

Ertron, a vitamin product, devised for use in arthritis, was rejected by the A.M.A. Council on Pharmacy and Chemistry because, at the time of its rejection, evidence of its effectiveness was considered not to be established. The Publication Committee felt that further trial was justified, and it has therefore accepted this advertisement.

The Publication Committee of the *N.Y.S.J.M.* feels that it would be unfortunate if all advertising in the medical publications of the country were restricted to those products which have already become firmly established; that many products, scientifically produced, manufactured by responsible firms, and showing promise of benefit to the sick, should be brought to the attention of the practicing physicians of the state.[3]

---

[1] J.A.M.A. 123: 354–355 (Oct. 9) 1943.
[2] *Minutes of Publication Committee, literary division,* Feb. 23, 1940.
[3] A third editorial in this series will appear in a later issue.

Symposium on Industrial Medicine

The JOURNAL is fortunate in being able to publish in this issue a symposium on industrial medicine by a group of authoritative writers. Beginning on page 2161 will be found papers by Drs. Clarence D. Selby on "Industrial Medical Provisions for Various Sizes of Plants, Both Personnel and Physical Equipment," Carl Peterson on "Functions of the Industrial Medical Service," Victor G. Heiser on "Feeding the Worker," McIver Woody on "Medical Aspects of Absenteeism in Industry," Herbert H. Bauckus on "Integration of the Industrial Medical Service with Medical Services of the Community and Social Agencies in the Community," and Cassius Watson on "What Plan Shall We Pursue Concerning Physical Defects in the General Population?"

Both the social and industrial aspects of illness in the worker are thoroughly discussed, as well as the responsibility of the physician with respect to it. The possibilities of the utilization by industry of the nation's estimated 3,700,000 people with heart disease, the 425,000 people blind in one eye, the 133,000 totally blind people, the 65,000 persons who are totally deaf, the 60,000 deaf mutes, and the 1,547,000 who are hard of hearing are discussed by Dr. Watson in the light of the growing shortage of manpower, a matter of vital importance to the continuation of the war effort.

Discussing absenteeism, Dr. Woody concludes that "Of the total days lost from work in this country for medical reasons, less than 5 per cent were due to sickness." In the light of the considerable publicity being given to this subject, his admonition that "the most important service that a physician can render to industry is in clearly distinguishing absence from work on account of sickness or accident from absence for personal reasons" is most timely. Statistical studies can be no more reliable than the data on which they are based.

The responsibility of the physician in industry, as well as that of the family physician of the worker, with respect to adequate food habits is pointed out by Dr Heiser. "Every worker kept at his task," he says, "every worker producing at his maximum because of enhanced capacity due to proper nourishment, means just so much more in the national effort in peace and in war."

Complete health and welfare programs for the worker and many aspects of industrial health service are discussed by Drs. Peterson and Bauckus from a vast fund of experience in this field, now more than ever important to the successful continuation of the war effort and the public health.

What Others Think

"To deny the intangibles of medicine is to deny the existence of human fears and weaknesses. It also is to deny such human forces as faith, hope, kindliness, and wisdom.

"A mother's labor pains, the cardiac's anxiety, and the child's newly found fear seem not entirely assuaged by last month's 'security taxes.' Neither does a doctor's value to society and the individual seem adequately measured by the anatomy covered within his specialty; nor is it fully determined by an unusual skill with a stethoscope, a scalpel, or a microscope.

"The intangibles in medicine—the infinite reactions of both mind and soul of the patient, as brought out in impending death, births, prolonged suffering, and the everyday struggle with disease. Next in turn, there is the inspiring word, the sympathetic ear, and the deep understanding of human frailties, as evidenced in the really good physician.

"One can state categorically, the patient and physician intangibles can never be governmentally blueprinted, nor straitjacketed within rigid departmental regulations. Bureaucracy does not change human nature."

So says the *Detroit Medical News*.[1]

But bureaucracy, according to Hatton W. Sumners in the *Readers Digest*,[2] is the result of forces which are destroying the principle of local self-government. "Why is it then," he says, "that in a land where everybody proclaims his devotion to it (democracy), representative government is withering before our eyes?"

"The Bureaucrat is blamed for this. But he is not the cause. He is the effect. The seat of the trouble lies far deeper.

"Our whole political system is based on the principle of local self-government. But two forces have been destroying this principle. One is the demand of the people for the federal government to intervene in problems of every community and every class. The other is the ever-growing practice of passing all these problems on to the government in Washington.

"By bureaucrats I do not mean those government employees once called 'civil servants' because they were employed to 'serve' the government and execute the laws of Congress. I refer to the bureau chief and his squadrons of counselors and economists and specialists. I am not criticizing them but the system. They issue what are called 'directives,' which actually have the force of law. One bureaucrat in the Securities and Exchange Commission said recently: 'We do make the law. This order supersedes any laws opposed to it.' Actually the bulk of what in effect are our general laws are now being made not by Congress but by bureaucracies.....

"It is a procedure as old as tyranny. But it cannot exist in a democracy, because where it exists government inescapably ceases to be a democracy.

"The essence of democracy is that laws shall be enacted by representatives of the people, and that all sides have a hearing. But laws enacted by bureaucrats are fashioned behind closed doors. The real author is not known to the people. He is appointed, not elected. Generally the first the public knows of his directives is when they are proclaimed. The law, once thus announced, is subject to frequent and sometimes capricious amendment. The bureau enacts it, enforces it and sits as judge in interpreting it. Most of these imperial bureaus are provided with tribunals equipped as courts and recognize a multitudinous bar which practices before them.

"It is not easy to get a law passed by Congress. But the bureaucrat can toss off a directive while you wait. The very facility with which he legislates encourages the multiplicity of laws. The fact that he does not have to face a constituency makes him

irresponsible to the people in the performance of this, the highest function of sovereignty.

"The promoters of centralization are more and more resorting to the exercise of another unlimited power against which no constitutional barrier will ever stand: the control of the purse strings. By making the units of state government financially dependent on the federal government, that government is acquiring the power to control the units of state government. When this is fully consummated, the sovereignty of the state governments will be liquidated."

It is easy for any thoughtful person to see where bureaucratic, political control of American medicine would lead. But, you will say, physicians, in such a matter, are special pleaders. It is their profession which is to be affected. Of course, they would be against such control. They want to be boss.

Of course they do! What does some bureaucrat in Washington know or care about your particular and peculiar needs when you are mortally ill in Swamproot (pop. 327)? But your local doctor knows. He cares. His county medical society cares. His state medical society cares. They want to control the kind of medical service you get when you desperately need it. *You are a sick human being to them, not a statistic!* Your doctor and his medical societies feel because he is a responsible physician and his medical societies are composed of other responsible physicians that in grave matters of life and death they should control what is done for you. Does this sound reasonable to you?

Find in the publications devoted to bureaucracy as a profession such statements as the following from the *Westchester Medical Bulletin:*

"The events of the tragic decade just past have shown that there is no good thing in human civilization beyond the capacity of man to destroy; no good thing in life that is outside the responsibility of mankind to defend and preserve. The rights of man to life, liberty, and the pursuit of happiness—and latterly to the 'four freedoms'—may be counted inalienable, but they can no longer be considered indestructible or indeed beyond forfeit through complaisancy. It is still possible to believe that God helps him who helps himself. But it strains the facts of life to assume that God guarantees a good life to men or nations who neglect to maintain the foundations of the good life in repair.

"Hence, a greater responsibility has fallen upon us all—but especially upon the physician. For the integrity of medical art and science can flourish only in a society that respects the dignity of man and the importance of human life. . . . .

" 'There are days to come when it will seem that humanity has lost its soul as well as its mind,' writes the editor of the Passaic County (New Jersey) *Medical Bulletin,* in a guest editorial reprinted elsewhere in this issue. The physician, he asserts, 'must carefully study the guiding principles of democracy. . . . . He must, above all, understand the importance of liberty, equality, and opportunity for all human beings; the interdependence of humanity; the evils of class, religious, and racial hatreds; the necessity of teaching (one might wish he had said, of practicing) cooperation between human beings. . . . . '

"Those who mistrust the aspirations of the common man, special pleaders for special interests, would persuade us that there is an inevitable conflict between the hope of freedom and the fact of interdependence. We are told we must choose between returning to a condition of pure license for individual acquisitiveness (such as really existed) or descending into an anthill civilization of complete mutual interdependence (such as few of us could long endure).

"But, as the physician above all must realize, people *are* dependent upon one another socially, economically—even, to an extent, intellectually and spiritually. Real freedom is not to be found in selfish license, but within the protective and liberating arms of the common law. True freedom is only a product of conformity to law, which saves us from compulsive conformity to the rule of men or of brute force. In a democracy, freedom is the ultimate reward that comes to a man when he has discharged his responsibilities to his fellow men."[3]

[1] June, 1942.
[2] Vol. 43, No. 257, September, 1943.
[3] Vol. XI, No. 7, July, 1943, p. 5.

Symposium on Industrial Medicine

FUNCTIONS OF THE INDUSTRIAL MEDICAL SERVICE

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MODERN industrial health service is designed to keep people at work. People stay away from work for a great variety of causes, an appreciable share of which falls under the general heading of sickness or injury—that is to say, they have some relation to health. A prime essential in an adequate industrial health service is a competent physician who takes genuine interest in applying the principles of preventive medicine and hygiene to employed groups and who is willing to devote regular hours to such service in the working environment. In the exercise of this kind of activity, the work of the physician in industry can be classified under three main headings: (1) medical and surgical care, (2) health conservation, and (3) industrial health administration. This order is employed because medical development in industry quite frequently occurs in this fashion. At the outset the need is mainly for remedial service; next, for one or another of the functions of industrial hygiene or toxicology; and, as duties multiply, the physician finds himself engaged more and more in the internal organization of his medical department and its relations inside and outside the plant.

Medical and Surgical Care

From an industrial point of view, absenteeism derives from two sources—that which is due to occupational exposure and that which is not. Industrial medicine and surgery deal with the first of these categories and include all the innumerable details of individual case management, diagnosis, treatment, disability evaluation, and rehabilitation. This is far and away the commonest contact between the physician and industry and, as a rule, involves relatively little adjustment from traditional methods of practice. It is still personal service. Its purpose is to restore the disabled industrial worker to his former earning capacity in the same line of work, without unnecessary delay. The closer we come to this ideal, the better do we accomplish medicine's restorative function in the industrial picture.

With respect to the treatment of compensable disability, the medical profession contends that the disabled worker should be free to choose his physician from all those licensed doctors of medicine who are competent to supply the required service except (as stated in the *Principles of Medical Ethics*) when a third party has a valid interest or intervenes. A valid interest is defined as legal responsibility for cost of care or indemnity. The treatment of injuries or diseases not industrially induced is a function of private medical practice from which the physician in industry should abstain unless emergency or palliative measures are necessary. As Collier has stated, every honest doctor knows the difference between that kind of service and systematic treatment.

Health Conservation

The most important medical function in industry is health conservation. Prevention is the cardinal principle for reducing the incidence of industrial disability, and as it succeeds there will be less dependence upon the purely restorative or reconstructive services of the surgeon and other consulting specialists. It is in this direction that industrial health lays claim to being a specialized discipline in medicine.

Health conservation in industry flows through two main channels. On the one hand it attempts to establish some form of medical supervision over the worker and, on the other, over the working place. A physician is successful in industry in direct proportion to his mastery over these technical approaches. Physical examination and health education are examples of the first type of activity, and the whole specialized field of plant inspection and exposure control is representative of the other.

Physical Examination.—Physical examination in industry is not so simple as it sounds although procedure in the majority of instances will not differ greatly from the standard methods employed in physical and laboratory diagnosis. Interpretation of findings in terms of job requirements is what calls for special information and good judgment. It is with respect to selective placement that physical examination becomes most useful and as such has very measurably outstripped its original function of defining liability for pre-existing disease. In the opinion of the Council on Industrial Health, physical examination, whether for placement or for other

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reasons, should be complete enough to provide positive health protection for the worker, his fellows, and the general public. A cheap or inadequate appraisal can, under many circumstances, be worse than none at all. The Council also believes that the examiner should acquaint the examinee with significant findings and take necessary steps to refer all conditions needing correction to the worker's own physician.

Health Education.—The objective of health education in industry is to create a personal interest in hygienic living, both in and out of the working environment. The plant physician is an unusually advantageous position to supply advice and counsel of this variety and he should take every opportunity to do so.

Industrial Hygiene and Toxicology.—The location, identification, and control of unhealthful occupational exposures is a primary function of the industrial physician. Our definition of an exposure is any working condition or environment, process, operation, or material capable of causing harmful physical effects. In most instances detection and control are simple and well defined. Elsewhere the problem may be so obscure as to call for the highest kind of technical and professional skill. Systematic methods are the key to dependable results—so much so that whenever the issue is not clear, competent industrial hygiene consultation should be called for. Such consultation is now quite readily available from state and local bureaus of industrial hygiene and from private sources.

Industrial Health Administration

The organization and management of an industrial medical department involve a host of assignments outside the fields of medical care and health conservation, all of which go to make up the third major function of the plant physician—industrial health administration. Here again, we have important subdivisions: in the first place, administrative problems affecting the internal organization and maintenance of the plant medical service; and, second, those affecting community relationships.

Supervision of Medical Department Personnel.—Internal administration includes such important aspects as procurement of equipment and supplies and all of the employer-employee relationships, which define the real position of the department in the plant. There are two which need separate discussion here: training and supervision of personnel, and record keeping. Industrial physicians must obviously be responsible for instruction and subsequent activities of nurses, technicians, and other assistants. Standing orders need to be posted for the guidance of medical department personnel so that there will be no assumption of unwarranted responsibility.

Records.—Records in industry are of two main types. One represents the industrial medical experience of the individual worker, starting with his preplacement examination and continuing through each subsequent visit to the medical department. Personal records of this kind are confidential and should always be kept in the custody of the medical department. Absenteeism records, on the other hand, reflect the health experience of the whole group in terms of cause, duration, and outcome. It is in this direction that industrial medicine can make an outstanding contribution to our knowledge of mortality and morbidity both with respect to disease in general and to the relation between morbidity and specific occupation.

Community Relationships.—Of the community agencies interested in industrial health, the plant physician will deal most frequently with official and voluntary health services, with workmen's compensation and rehabilitation groups, and with medical organizations. Collier speaks of the industrial medical service as closing the gap between personal service on the one hand and social and public health services on the other. Herein, it seems to me, is a relationship toward which all of us can travel with some degree of confidence if dependable machinery is set up in each industrial community for actual consultation between industrial medicine, private practice, and community health facilities. Certainly, industry is a convenient avenue for the application of many projects in the general field of adult hygiene, as, for example, communicable disease control and such recent developments as nutrition education. In the same way efforts which the industrial medical director can undertake to bring together community practitioners and workers who need medical care have such beneficial aspects to all concerned as hardly to warrant argument. It would be possible to list many other activities of reciprocal advantage designed to initiate, correlate, and maintain efforts at improving the physical status of industrial workers. Actually, we now have such local machinery in many industrial areas through the formation of committees on industrial health in county medical societies. Our recommendations to these committees do, in effect, suggest that there be representation from each of these interested groups which have been enumerated above—private practice, industrial practice, and local health departments. We have great faith in this plan for improved local organization of industrial health service as an expression of leadership by medicine in a field which represents a great responsibility during

these trying days and an unparalleled opportunity for lasting and beneficial service.

Summary

This discussion has presented the major functions of industrial medical service as falling mainly into three classes: medical and surgical care, health conservation, and industrial health administration. The cumulative experiences of many physicians in industry have demonstrated that industrial health service can operate efficiently, ethically, scientifically, and in accordance with the best interests of the worker, employer, official agencies, the general medical profession, and the community at large.

American Medical Association
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INDUSTRIAL MEDICAL PROVISIONS FOR VARIOUS SIZES OF PLANTS, BOTH PERSONNEL AND PHYSICAL EQUIPMENT

C. D. Selby, M.D., Detroit

THE question implied in this subject is: "What personnel and physical equipment are essential in various sizes of plants for industrial health service?" This question usually arises in small or expanding plants, the owners of which have had no previous or but limited experience with industrial health service. Large industries with established medical departments seldom raise the question. Therefore, in discussing the subject I shall be concerned chiefly with small and expanding plants, and I shall be very realistic and quite elemental.

On the ground that informed physicians can control occupational diseases, reduce disabilities from occupational injuries, and maintain good health levels in industry, the medical profession is preparing itself on a broad scale for industrial service. This can become an important contribution to the war effort. Believing that medicine has much to offer industry, certain governmental and voluntary agencies are encouraging the industrial employment of physicians, part-time or full-time, but progress is slow and medical organization is impatient.

Through experience I know that the owner of a plant, particularly a small one, can be frightened away from medical service by an elaborate presentation which has the appearance of being expensive. It is far easier—and perhaps he thinks it far less costly—for him to arrange with a medical friend or a neighborhood physician to care for his injured workers only, and then only when accidents occur. When one does occur, the injured worker may be sent to the doctor's office or to a hospital that he recommends, or to the worker's home, or the doctor may go to the plant to see him, depending upon the injury. That is the usual arrangement.

Some day the employer awakens to the fact that he has dermatitis in the plant. Perhaps he has been sending an occasional case to the doctor, and it suddenly dawns on him that he is having too many. So he calls the doctor and asks him what he ought to do. The doctor has never been in the plant—in the tool crib once or twice to see someone who was hurt, but not out in the plant. This is that doctor's opportunity, and if he is prepared to accept it, he will say, "I'll be down as soon as I can get away."

He finds a number of cases and makes some suggestions. On leaving, he tells the owner, "I think I'd better come back in a couple of days and take another look." This is that employer's introduction to industrial hygiene methods. Possibly—in fact, most likely—the doctor will find other occupational disease exposures which need control. He returns several times, and he makes some suggestions.

Seeing him in the plant, employees who should have redressings and would ordinarily go to the doctor's office for them ask him to treat them there. So, with this experience, the doctor suggests to the owner, after a few plant visits, "Why don't you let me come down here for half an hour a day (or for whatever time may be necessary) to take care of the cases on the job and watch over your plant?" That seems to be a reasonable suggestion. It will save the time lost by employees in going to the doctor's office, and minor cases which would not be sent out for care could also be treated on the job. So they come to an agreement.

There is nothing said about a place for the doctor to work in or about equipment. He just carries his bag into the plant, sets it down on a bench in the tool crib, and sends for a man who he knows needs a redressing. Others, hearing of the doctor's presence in the plant, come for treatment or advice. The demand for the service gradually spreads, and the doctor says to an occasional workman who consults him, "I think

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From the General Motors Corporation, Detroit, Michigan.

I had better look you over." There is no objection and the doctor takes the man behind the tool rack to make the examination—after a fashion. This is the beginning of a counselor and examination service.

The doctor continues to take advantage of such opportunities as they occur, making no complaint about the inadequacy of the facilities or saying anything to the owner about a program. He simply goes ahead and does what he thinks is right. By and by, word reaches the owner, he becomes interested, and is pleased. He calls the doctor into his office, tells him to pick out a place in the plant where a room can be constructed and equipped for medical service. In due time it is completed and equipped according to the modest specifications suggested by the doctor.

In the doctor's absence—for he is on a part-time basis—a clerk from an adjoining office, trained in first aid, takes care of minor injuries or calls the doctor, according to circumstances.

Somewhat proud of what has been done, the employer drops into the doctor's office occasionally, and he sees that the place is fairly busy. Sooner or later he authorizes the employment of a nurse, at first for part-time—say, half a day—and later for full-time. The medical service is now fairly well established.

The next step is preplacement examinations, and this comes as a natural consequence, wholly without urging. It completes the program.

Thus, in this slow fashion and by a step at a time, a complete medical service has come into effect in a small plant, and, being built up by this gradual process, it is on sound ground. It will not be over-extended or abandoned when a depression or recession comes, and it can be expanded with the plant.

While the above sketch is not the story of any one place, it is neither fictitious nor hypothetical. It is very real, and it is happening with increasing frequency. In devising its plans for the promotion of health service in industry, the medical profession must recognize this as a frequent procedure, if not the best and most desired. In it the important points are:

1. Medical service cannot be crowded into small plants. It must work its way in, it must expand slowly, and it must pay its way.

2. The key to the introduction of medical service in small plants—and, I would add, also in medium-sized plants and large, for these are but expansions of small plants—is in the medical profession and the "know how" of the doctors who are available.

For these reasons the profession must be prepared to serve in industry, and doctors must not become discouraged if they are not immediately employed when they are prepared to serve.

Nothing has been said thus far about the provisions for personnel and physical equipment. Presumably plants of various sizes do require certain personnel and equipment according to their size, but other factors must be equally well considered—the nature of the industry, the effectiveness of the accident prevention program, the sex and intelligence of the people employed, and so forth. To give adequate consideration to these factors in laying down specifications is exceedingly difficult; nor does it seem to be wholly necessary so long as the key to good industrial medical service is in the medical "know how."

On the contrary, it is far better for the owner of a small plant who wishes to have medical service to employ a doctor who knows how to start it and build it up—the minimum of space he needs and the simple equipment he requires. This should be the owner's first and perhaps only important step. In fact, an informed physician may be somewhat handicapped by having his quarters built and furnished in advance by someone with little knowledge and experience.

Therefore, the advice to management with respect to personnel and equipment is to employ a doctor who knows the medical problems of industry and to give him a reasonably free rein.

The advice to the doctor is to start with a minimum of space, personnel, and equipment, and build slowly.

In plants of medium and large size the personnel and equipment requirements are perhaps even more variable than in small plants, and here, again, they depend on the factors (apart from size) previously mentioned and some others as well, such as the attitude of the management, the policies of the medical department, and the extent to which medical service has been developed in the other industries of the community.

In the past few years medical programs have tended to expand and measures for the control of certain nonoccupational diseases have been adopted—pulmonary tuberculosis and syphilis. Obviously, these expansions require additional personnel—doctors, nurses, and technicians—and equipment.

Now the specialties are urging elaborate programs on medical service in industry in such branches as ophthalmology, cardiology, dentistry, dermatology, gynecology, and others. Expansions of personnel to meet these highly specialized programs can conceivably be without limit, and they must be limited lest industrial medicine become impractical and unacceptable to management.

Before the war, the ratio of physicians to employees in the General Motors Corporation averaged about 1 to 1,600. It is now about 1 to

3,500. Before the war, the ratio of nurses to employees was about 1 to 600. It is now about 1 to 850. The number of employees has been greatly increased, and the medical procedures also have been increased. For obvious reasons, the expansions in personnel have been entirely in the employment of nurses and not physicians. Incidentally, replacements of physicians who accept commissions has brought inexperienced men into the Corporation's medical staff, but even so, and despite the great increase in responsibility, the doctors in the ratio of 1 to 3,500 are doing well.

As a matter of fact, they have a splendid record. Notwithstanding these changes in medical personnel, greatly increased employment of inexperienced and physically substandard people, the change-over in manufacturing operations, and the appearance of new occupational disease exposures, the disability rates for both occupational and nonoccupational sicknesses have not increased, and the severity rate for occupational injuries is the lowest in the history of the Corporation.

In this respect General Motors' experience should not be regarded as unusual. On the contrary, with its small divisions as well as large (105 in all, located in forty-four cities and thirteen states) it is fairly representative of average industrial conditions and industrial medical practices. In view of this experience and the evolutionary trends of industrial medicine toward more elaborate health maintenance programs, how can one set up standards for medical personnel and, by the same token, for physical equipment in the medical departments of General Motors Corporation or any other? At any rate, it does not seem wise to do so in General Motors.

Finally, industrial medical provisions for various sizes of plants, both personnel and physical equipment, are too variable for specification. They can best be arrived at by the doctor charged with the responsibility, and, assuming that he has industrial perspective, he will specify minimums according to his experience, his judgment, and the needs as he sees them. The important move for the medical profession is to prepare itself because few are the plants, regardless of size, that cannot be benefited by informed medical service, either part- or full-time.

If specifications are required, the reader is referred to the excellent publications of the Division of Industrial Hygiene, New York State Department of Labor, and the Council on Industrial Health of the American Medical Association.

INTEGRATION OF THE INDUSTRIAL MEDICAL SERVICE WITH MEDICAL SERVICES OF THE COMMUNITY AND SOCIAL AGENCIES IN THE COMMUNITY

HERBERT H. BAUCKUS, M.D., Buffalo

MY TOPIC is new enough to make us pause for a moment to look at its many implications. It looks as if we had come a long way from the time when all we thought about was factories, workers employed and unemployed, the doctor called too late to a hopelessly sick worker, a death in a mine cave-in, or other industrial accidents. It is true these things are still happening today, and too frequently for the advanced standards of the United States. However, when they do happen, they make us feel our own responsibility sharply and poignantly, and in the heart of each of us is the resolve not to let it happen again. For we are all responsible.

Industrial health as a community responsibility has been a distinctive feature only for the last few years, and it is in this light that we must look upon the integration of industrial medical service with community medical services and existing social agencies.

The war has accentuated another problem which by no means should become invalidated in peacetime. No longer is the individual behind the machine alone our responsibility, no longer does his own health affect the production process, but also the well-being of his family has a direct bearing on efficiency and output. Since production, be it for war or for peacetime goods, is kept up in the interest of the nation as a whole, efficiency and output must be kept at a high level and the health and welfare of the industrial worker and his family must be protected—yes, guaranteed—in the interest of the nation.

If the worker himself is ill, he is either not functioning at all or not very well. But is he not as seriously affected if his wife is ill at home? What happens to the woman worker who knows that her children are without supervision for the day and that there is no one at home to cook a proper meal for them? Will not the peace of mind of the worker be disturbed whose family is sheltered only by a trailer roof? Can we ex-

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pect the nervous resistance of a worker to hold out if his means of transportation to and from work is so inadequate that unnecessary strain is added to his already arduous day? These are only some of the examples which indicate that industrial medical services, community medical services, and social agencies must pool their resources for joint action rather than spend time trying to decide where the responsibility of one starts and the other ends.

We here in New York, and especially those of us who live in large urban areas, are apt to dismiss some of these problems too lightly under the impression that everybody has access to everything in this great state of ours. The assumption is not quite correct because the distribution of available facilities is far more uneven than we would hope it to be. There are, first of all, hundreds of plants without any medical service whatsoever on the premises, eliminating thereby the original source of finding the problem at its origin. There are areas where medical and hospital service is not as handy as in others and where no such variety of service is available. And there are definitely areas where social agencies are an unknown quantity to the worker who, therefore, has no one to turn to but his next-door neighbor. These conditions exist to a far higher degree in other parts of the country, and it seems to me that New York State must in its considerations help others find the answers to their problems. In short, we here must pay attention to fundamental principles in any discussion that deals with the well-being of the industrial worker.

But let as assume, for the purpose of demonstrating the necessary close working relations of these three groups—the industrial medical department, the physicians in the community, and the various social agencies—that the picture is satisfactory. The plant or the plants of the community have all a more or less adequate first-aid or medical set-up. A full-time physician, or several, are on duty. An adequate number of nurses for the number of employees are stationed at the plant. General practitioners and specialists are plentiful. Health agencies, child agencies, social and recreational centers—all are at the service of the community. What would be the logical division of responsibilities?

The industrial medical department will become the diagnostic center. When we say "diagnostic," we mean more than the diagnosis of a broken toe or arm, a skin disease, or any other obvious sickness. Any difficulty facing the worker should be diagnosed with the help of the forces of the medical department. If a woman becomes excessively tired at her job because the work is still new to her or if she does not receive the right kind of food and rest, it should become the responsibility of the medical department to find out about her problem. The nurse, for instance, can here begin to play a much more important role than she previously has played as well as the plant dietitian, who must become an ally of the medical department. If a worker is absent at frequent intervals without being ill himself, the cause should be analyzed. If a young fellow, obviously working for the first time in a plant and possibly a newcomer to the town, shows himself moody and depressed, the medical department, with the help and information of the foreman, should try to get at the bottom of his condition and should be ready to assist with concrete suggestions for recreation and companionship. I think it is clear what we mean by a "diagnostic center."

The medical resources of the community, on the other hand, all taken together, represent the center for treatment and cure in case of actual sickness. Efforts must be made by the organized medical group to help the industrial medical department in its fight for complete independence from company interests. Too often the issue of compensation colors diagnosis and referral practices rather than the interest of the sick worker. The medical profession, through organized action, is the one group which could effectively bring about a faster adjustment of compensation payments. Meanwhile, however, knowing how long it takes for the first compensation payments to come through, the physicians might well arrive at a mutual agreement as regards payment of fees in the interim, in order to encourage the worker to keep up treatment and to become well as quickly as possible. Furthermore, it has become more and more apparent that the personal interest of the physician in the kind of job the individual is doing is necessary to prevent relapses or a renewed flaring up of the disease. More often than not, the private physician's influence is needed to have the worker transferred from a job unsuited to his physical condition. In this way we will keep manpower utilized to the highest degree.

The role of the social agencies can broadly be defined as prevention and social rehabilitation centers. In many instances the industrial medical department will call on them without having to have recourse to a physician. As a matter of fact we have still a lot to learn in making the best use of existing facilities in the interest of production. Has it ever occurred to an industrial concern employing women for the first time to call in a physical educator to help train a group of women for a particular job by teaching them correct posture, muscular relief, and many other possible aids to overcome physical fatigue and

strain? Exercises at work generally, as a useful break in the monotony of work and a definite contributor to new energies, are as yet completely neglected.

But there is the more complicated case of the worker who is found to be tubercular and who needs medical attention as well as economic help for his family. There are examinations to be done on his closest contacts, both within his family and among his coworkers. A rehabilitation program is needed after he has recovered. In short, this is only one of many examples where the interplay of the industrial medical department, the medical services, and social agencies is so close that one without the other would do only half of the job.

Recreation in an organized fashion and as an aid to the physical and mental well-being of the workers must receive the attention of the cooperating groups. Its expansion and fullest application, the teaching of its value and its promotion must not be dismissed as something outside of our sphere of activity. It is here that physicians can contribute to the community spirit and can play a direct part in a program of conservation of manpower.

At this point it might be of interest to the group gathered here to become acquainted with experiences which we have had with our "Buffalo District Committee for Industrial Health."

One of the outstanding characteristics of this committee is its community composition for a program entirely geared to industrial health. The committee has been kept small for purposes of efficiency. It was established in response to a definite need expressed by management, labor, and community representatives at a conference last summer. Our State Society has had a long-standing interest in industrial health. It maintains a study committee on industrial health which is a subcommittee of the Committee on Public Health and Education. Recent intensified activities by the Council of Industrial Health of the American Medical Association, the Division of Industrial Hygiene of the New York State Department of Labor, and, nationally, the Division of Industrial Hygiene of the U.S. Public Health Service warranted taking the initiative ourselves in conjunction with a number of public health and industrial health-minded citizens. Representation on the committee is divided in the following way: four physicians, one of whom is the chairman, and one full-time industrial physician; five representatives from management, reflecting the major industries of this area; one man each from the C.I.O. and A.F.L.; two representatives from social agencies giving the committee access to the rest of the agencies; and two lay people—one a Negro—from the community at large.

With the help of this small working group, the committee has set itself a number of ambitious tasks, some of which have already been realized. As an objective, fact-finding, and public relations body, the committee is able to foster both education and action. Its educational program is designed to serve specifically and with necessary differentiation the management, labor, and physician groups. In terms of action it foresees and expects to help improve industrial health conditions and to give assistance particularly to the plant with fewer than 500 employees.

In the four months of its existence the committee has worked out and issued a brief manual on minimum medical standards for industries of various sizes and an information bulletin acquainting management and labor with the danger and precautionary measures in regard to keratoconjunctivitis. It has also held an open forum under the title "Increase Manpower Through Industrial Health," which was attended by more than 250 representatives from management, unions, and the medical and nursing groups.

Similar committees in all industrial areas of this state are planned by the Study Committee on Industrial Health. Integration of programs of this sort becomes a direct responsibility of all physicians. Lack of cooperation has often been apparent because of a mutual distrust between the different groups. Narrow concepts about the encroachment on territory wholly reserved for one group must disappear in the face of the important question: "What will serve the health interests of the worker best?" While we believe that treatment and cure should be in the hands of a physician of the patient's own free choice, there are today many communities where the physicians employed by industry represent the only access to any medical care at all.

There are also lessons to be learned from industrial centers in various parts of the country, where employer initiative has instituted complete health and welfare programs for the workers, cutting down to a noticeable degree on sickness and disability. If it is our belief that unfettered initiative produces the best results, let us take results achieved elsewhere as a guiding principle in developing initiative to the fullest degree to emulate these results. Let us start now actively on a program of close cooperation between the interested groups to provide the kind of health protection that will serve the industrial worker and his family. In this way guarantees will be provided that the production process will not be slowed up by sickness and accidents, and organized medicine's contribution to the war effort will become an important and a vital one.

FEEDING THE WORKER

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FOOD is today in the forefront of news. Food rationing, food prices, food conferences, food for soldiers and sailors, food for evacuated peoples in Africa, and, we hope, some in Europe and Asia as well—in these and other ways food is top news. Physicians have a specialized interest in food, for they long ago learned the value of proper food in keeping people well and in healing the sick. With the growth of the science of nutrition, a much keener interest developed among both physicians and the laity. The words *protein*, *carbohydrate*, and *fat* began to assume new importance. It was not, however, until 1911 that a really outstanding concept took hold, when Funk announced that there was a substance belonging to none of these categories and to which he gave the value "vitamin." From then on knowledge of true food values has grown rapidly.

Industry is today faced with many problems, all or many of which need not be enumerated at this time. Basically, a most serious concern relates to the health of the workers in defense and related occupations, for the margin of ultimate victory over our enemies may rest on that narrow margin between health and ill-health of the producers of the armaments of war. Through varied and expensive research many methods have been devised to protect the health of the worker, to guard him against excessive work fatigue, to provide him with proper light, heat, humidity, ventilation, protective clothing, and guarded machinery. In many ways, large industry has made marvelous strides in these directions, and all concerned have gained thereby.

Still, what the worker does outside of the factory, what food he eats and omits have definite effects upon his well-being. More than one hundred years ago, in 1817, to be exact, a traveler in England reported the interest of the employer in helping to meet food needs of workers. "Such as reside in cottages not too far remote from the factory, eat their meals at home; such as reside at greater distances form messes and cook their own food in the mess rooms, fuel and culinary apparatus being gratuitously supplied for that purpose. The milk is supplied by the farm attached to the factory." In our own country, the J. B. Stetson Company furnished its employees with 182,000 meals in 1921, the Goodyear Tire and Rubber Company served its workers 540,000 meals in 1922.

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The highly skilled professional and patriotic service being rendered by many hundreds of physicians throughout the country in examining the men called by the Selective Service Boards is having a major effect on industry. This can be stated in a few words—the best are taken; the physically handicapped are being returned to industry. Of course, this is as it should be, and certainly employers have no complaint on that score. But think with me, if you will, of the problems faced by industrial physicians whose responsibility it is to examine and accept many of these rejectees; to advise regarding their suitable placement at jobs totally new to them; to guard their health as best they can under the stress of maximum production under war conditions. Yet the job is being done, and our production schedules and records indicate how successful we have been.

A major aspect of health conservation that physicians in industry face relates to the food habits of workers. Altogether too many are accustomed to report for work without having had any breakfast, or only a cup of coffee and a couple of doughnuts, hardly adequate food for an industrial worker. Studies of lunch boxes of several thousand workers, both on the Pacific coast and in an eastern city, pointed up this lack of knowledge of what goes to make an adequate meal, in the light of modern information. Following these and other careful studies and acting upon recommendations of leading industrial physicians, a program has been outlined which has already shown reasonable signs of progress.

Our recommendations to industry as a whole cover the following points:

1. education of the worker as to what constitutes an adequate diet and as to the dividends to be collected in terms of personal health and national security by sticking to it,
2. education of his family, especially of his wife or mother, as to planning and preparing three nutritious meals a day, including an adequate lunch to be carried to work,
3. provision of nutritious foods at the plant—in the cafeteria, at lunch counters, in rolling kitchens, and in the between-meals, supplementary "snack bars,"
4. cooperation with local restaurant owners to provide nutritious foods under sanitary conditions for workers near the plant and in their home communities,
5. making nutritious food available at low cost at the plant and in local restaurants, and

education of the worker to spend enough of his money on food to receive an adequate diet at all times.

An experiment in England has demonstrated the practicability of the attempt to change the eating habits of the war worker by approaching the problem from three points—education, economy, and provision—simultaneously. In this experiment, the workers were allowed free choice between the famous "Oslo meal" and their usual lunch previously obtained from a small industrial canteen, the price of the two meals being the same. During the month of the tests, consumption of the Oslo lunches ranged from 61 to 85 per cent of the total. Perhaps it may be well to indicate that the so-called Oslo meal, made famous in Norway as a breakfast in better years, consists of milk, whole wheat bread or biscuits, butter, cheese, raw fruit, or raw vegetables. This is quite an improvement upon the type of breakfast to which many of our industrial workers, both men and women, are addicted.

In our own country, as already indicated, industry is taking a leading and effective part in educating workers as to the value of proper foods.

Industrial physicians and dietitians are collaborating to provide wholesome and attractively prepared food at moderate prices. In many plants the sale of milk and salads has reached a new record, and the end is not yet in sight. When it is recognized that some plants are providing more than 50,000 meals a day, and that the preparation of such meals is most carefully planned and supervised, it may be seen that industry has taken in this added responsibility with the same spirit and with the same desire for perfection that motivates the plans for the production line.

The physician in industry, working in collaboration with management, is beginning to recognize his nutritional responsibility. Physicians not directly serving industry but caring for and advising industrial workers and their families can add their quota of effort to the national campaign for adequate food habits. We are in this war together, on the home front and in serving the battle line. Every worker kept at his task, every worker producing at his maximum because of enhanced capacity due to proper nourishment, means just so much more in the national effort in peace and in war.

WHAT PLAN SHALL WE PURSUE CONCERNING PHYSICAL DEFECTS IN THE GENERAL POPULATION?

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THE significance of the title of this paper must be construed broadly; however, it will be proper to devote most of the consideration to the industrial point of view. There is an implication that the physical defect problem should be regarded constructively as pertaining to persons in industry, with and without various forms of impairments, and also to a very large portion of the community who may be available in certain capacities of service and yet are never regarded as a part of the industrial population.

There has been repeated in the public press, and in many of the journals, the fact that with the extension of the draft requirements, draining not only the younger age group but also the very large group with certain minor impairments, there would be available for industry, both for war and public endeavor, the older age group and those bearing impairments of such a degree of gravity that they could not serve in the armed forces. It is interesting to note, however, that recently in the 1-B classification, individuals with certain forms of impairments, such as overweight and certain visual defects, are now being inducted into the service, while but a year ago they were considered almost negligible so far as their war ability to work was concerned. It is apparent, then, that we are to approach the general population's physical defects governing employability with the knowledge that the impairment feature is going to confront industry and those in supervisory capacities on every side. Management from the standpoint of an age-old prejudice toward the impaired individual and the examining physician from the standpoint, in many instances, of being obliged to institute standards, must recognize that the profession is woefully ignorant concerning the intimate details of rationalizing the physical and mental features of certain jobs with physical and mental impairments of prospective workers. The opportunities for job analyses from the medical viewpoint, particularly as concerns employability in terms of certain impairments, have not been forthcoming to the necessary extent. This feature may well be dwelt upon by those who have the direction of industrial training and in the medical schools where the empirical construction of the curricula,

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both medical and surgical, has from the very beginning borne little or no relationship to the requirements of the world of industry. There is much in the way of both industrial and professional education to be integrated into the several systems of training. This applies not only to the supervisory groups in industry, but also to top management, as well as to those members of the communities concerned with the direction and control of such matters as public health, industrial hygiene, social welfare, etc.

There is no doubt that in our general population there is a vast amount of available manpower scattered through the two sexes, which can be adapted, and the utilization of which should go a long way in the course of time to bring labor and management into a more sympathetic and wholesome relationship. It may well be that war demands will have a constructive effect in postwar planning, both within and without industry. There are between 2,500,000 and 3,000,000 persons in the United States who are physically impaired to such an extent that they are known to present a problem to management in making available opportunities for work commensurate with the several degrees of incapacity, and while some of this number have under the newer consideration of the 1-B classification been taken into the Army, the number presenting a formidable potential source of manpower has still to be classified and placed in employment.

The natural classification of employment, of course, consists of but two fields—war work and the ordinary occupations involving civilian needs. In the war industries the statement has been made, many times, that with the employment of impaired individuals the excellence of the products of the several handicrafts must approach a higher degree of perfection than is demanded by those for civilian needs. This, of course, is by reason of the extreme delicacy and exactness needed in the construction of many of the machines and instruments of actual combat as well as in the nation-wide program of interchangeable parts for all kinds of mechanical units. On the other hand, the civilian needs do not have the same vital urge for exactness and coordinated fabrication of goods. It is to be supposed, therefore, in planning the use of this potential manpower, that there may be special variable physical standards for those who are to work in the war plants and less stringent and more variable ones for those who are to be concerned with the multitudinous needs of the civilian population.

It is estimated that 3,700,000 people in the United States have heart conditions of one sort or another and that at least 680,000 have tuberculosis, either pulmonary or that involving the bony skeleton and glandular system.

There are 133,000 totally blind persons and approximately 425,000 persons blind in one eye. It is this latter group that may be found to be readily placeable in certain specific capacities. The totally blind are placeable in appropriate restricted capacities.

There are approximately 65,000 persons who are totally deaf, about 60,000 deaf mutes, and about 1,547,000 who are classed as being hard of hearing. It has been stated that 75 per cent of this latter group have been or can be improved industrially or socially by adequate hearing aids.

It is estimated that two out of every hundred persons in the United States have a permanent orthopaedic impairment. In other words, there are 2,500,000 persons with orthopaedic handicaps, and 500,000 of these are impaired to such an extent that they are incapacitated, probably with a percentage loss in certain occupational capacities not incompatible with individually determined jobs. There are not satisfactory figures to indicate the number of persons with chronic functional disease, but it is highly probable that the number of employable diabetics, nephritics, and arthritics is large. It is to be understood that a relatively small percentage of such impaired persons will get into the armed forces or the essential war industries, regardless of liberal physical classification plans.

There have been a number of definitions for impairments, and perhaps these definitions should be confined to the specific organic meaning of the term. On the other hand, it would also seem that in speaking of men and women in industry who have impairments the definition should be confined to what we might call "the impaired person" and, therefore, should state that an impaired person is one who by reason of birth, disease, or accident has suffered loss or limitation of function of certain of the body parts, the organs of special sense, and the mentality necessary to carry out the acts of existence, industrially, protectively, and otherwise. It goes without saying that the impaired individual during our present war days is going to be more and more useful in the production of war and of civilian goods, and if management efforts, supplemented by close medical cooperation, can allocate the willing, desirable applicant to a job according to an approved standard of physical and mental job allocation, this may ultimately be extended into the postwar employment spheres. Such constructive planning should imply that industrial management is prepared to recognize industry's responsibility for the community public health and welfare.

Inasmuch as we are obliged to make an at-

tempt at standardization of jobs in terms of physical impairments, or physical impairments in terms of jobs, this may well be considered from the standpoint of the possible situation in which the selfsame impaired individuals may find themselves in postwar days when the labor market may be filled with Class "A" physically fit individuals. The occupational needs of the impaired individual, however, will be just as acute after the war as they are at the present time, and this problem should be thought through in terms of a plan to insure the employment of more such individuals than has been the case in the past.

If the worker with but two fingers on one hand opposable to the thumb, with the other hand perfect, who has in prewar days been considered unemployable for machine tool work can demonstrate that he can produce as much work with as high a degree of mechanical perfection as can the man with both hands intact, his employability should be judged on the same basis as that of the man with no handicap. If we apply the principle of this illustration throughout the entire industrial field, considering impaired persons for their proper industrial environment, there should be very little controversial attitude taken by labor with respect to management and management's desire for preplacement physical examinations.

Impairments, with respect to workers in war industries as well as workers in civilian industries, may be grouped as follows:

1. Vision
   (*a*) Blindness
   (*b*) Blindness in one eye or correctable visual acuity impairments in one or both eyes
2. Hearing
   (*a*) Complete deafness
   (*b*) Deafness in one ear or correctable partial deafness in one or both ears (with hearing aid)
3. Orthopaedic defects
   (*a*) Congenital
   (*b*) Acquired through sickness, accident, new growth, or surgical removal, or alteration
4. Chronic disease
   (*a*) Tuberculosis
   (*b*) New growth
   (*c*) Heart disease (rheumatic, coronary, syphilitic, hypertensive—peripheral vascular disease)

In the war industries plants there has naturally developed an acute interest in the part which preplacement and periodic physical examinations have in industry, and it is to be hoped that this same point of view is gathering impetus in such civilian industries as department stores, various types of manufacturing plants, and in the centers of administration of industrial groups of all kinds. While, as yet, it is beside the point to demand a set of standards for the civilian industries, nevertheless there are a few factors that might be considered common to all forms of industrial employment. Management in these days of growing personnel relations is assigning to employment groups persons of judgment and tact who possess imagination and willingness to estimate beyond the actual deportment of an individual on applying for a job, his costuming, appearance, etc., and to see potentialities often quite missed in the old routinized, hidebound employment organizations. This type of personnel endeavor can well be fostered along the lines of experience and up to a point where a wholesome screening process may be established and the obviously doubtful applicants be allocated to other sources of employment without taxing the medical facilities. This is not mentioned because of any economic point of view or for the purpose of emphasizing the need for an unusual type of personnel to handle pre-employment adjustment relationships.

It is to be remembered that the primary physical examination of candidates for war industries jobs as well as for those in civilian industries have as the objective a preplacement appraisal of prospective male and female candidates for jobs of increased demands, both in and out of war industries and for the period of the war as well as the postwar period. There will be particular emphasis laid on permissible impairment requirements for persons who may previously have been considered substandard and on whom, through excellence of performance, there should be demonstrated ability of such a degree as to look to permanent employment.

In grouping the physical and mental requirements of particular jobs and correlating them with industrial needs, it should be borne in mind that after the individual appraisal has been completed the examining physician should be held responsible for the initial suggestions as to employment. This is necessary because certain types of impairments incompatible with various forms of employment should be appraised according to a physician's judgment as to degree and to limitation of function in accordance with physical findings. This statement should be emphasized as having a temporary significance, for it is true, at least in the early stages of such a project as this, with respect to women applicants, that individual appraisal and placement must be done, until, through experience, enough facts have been accumulated to justify progressive standardization. Throughout the entire examination promi-

nent impairment factors bearing a special reference to placement, general appearance, and condition must cause the examining physician to render an opinion on an individual basis, this final opinion taking into account the aggregate of such factors as stress of the war effort, earnest desire of the prospective employee to work, the limitations of the organic and functional impairments with respect to specific jobs, the past and present personal history (judiciously discounted), and the proximity of the home to, and the working conditions of, the place of employment.

History

History of the individual should cover venereal disease, convulsive states (epileptic fits, etc.), bleeding states, sanatorium or hospital experience, surgical operations, accidents and their causes, previous occupation and training (emphasis on mining, sandblasting, etc.).

In the case of women, the history should also cover menstrual difficulties, pelvic surgery, pain, discharge, or swel'ings, married status, living children. In all instances there should be elicited facts as to domestic conditions and relations, nutritional facilities, etc.

History of pelvic infection or of periodic inevitable dysmenorrhea (disabling for one day or longer) should call for an adequate gynecologic examination at the hands of a specialist, and employment should be conditional on the institution of suitable psychologic, estrogenic, or surgical therapy.

History of epilepsy (with a maximum of one seizure weekly) should be acceptable, if the history is otherwise satisfactory, for blueprinting, small parts inspection, work to be of a sitting character, etc. (conditional on adequate diagnosis and dilantin or other approved therapy.) However, it should be pointed out that few industrial plants will employ epileptics.

History of institutional care, if the institution was for tuberculosis, and specific data as to the character of the sanatorium and hospitalization experience should be obtained. These applicants should be acceptable if there has been no return to the sanatorium within three years, if the condition of the lung is satisfactory, and if sputum is negative for one year. Adequate mechanical rest of the lung (by pneumothorax, pneumolysis, thoracoplasty, phrenicotomy) is satisfactory for special assignments.

If the institution was for mental disease, data should be obtained from the institution as to the nature of the illness, the I.Q., if possible, and advice should be sought from proper neurologic sources. Cured manic depressive and stabilized schizoid persons should be acceptable, for special assignment, and attention should be directed toward proper behavior supervision. However, it should be noted, that practically all industrial plants reject candidates for employment who have a history of mental disease.

A history of repeated accidents should call for a careful special sense scrutiny and test of reaction time. Such applicants should be suitable for parts inspection and blueprint reading.

It is suggested that the dated signature of the applicant be required as to the accuracy of the entire history.

Examinations Applicable to All Occupations

Temperature.—The temperature should be within normal limits.

Pulse Rate.—The pulse rate should be within normal limits except in recognized old heart block —that is, up to a rate of 90 beats per minute in the absence of other organic disease. If the rate is above normal, the candidate should receive special study on the basis of which his acceptance or rejection should be determined.

Weight.—Weight is not particularly significant except in extreme cases and when associated with definite signs of disease.

Blood Pressure.—If it is within the following limits, the blood pressure should be acceptable. Hypertension: systolic between 130 and 140 mm. in applicants 20 to 30 years of age; between 140 and 150 mm. in applicants 30 to 40 years of age; up to 180 mm. in applicants over 40 years of age, provided there are no peripheral signs of vascular or organic disease.

In systolic pressure range between 130 and 140 mm., there should be established an arbitrary diastolic range of from 65 to 100 mm., according to the relationship with the corresponding systolic pressure.

It should be pointed out that some industries, particularly those engaged in certain chemical work, will not accept employees with blood pressure readings as high as these.

In instances of hypertension, or hypotension, if there is no symptomatology and the general physical condition is satisfactory, determination of acceptance should be a matter of judgment on the part of the examining physician. Owing to economic and management restrictions, it will be found difficult to determine the underlying causes of pathologic blood pressure phenomena. Hence, bearing in mind the element of relative disability of particular individuals, the war production needs, and perhaps also the war duration factor, a liberal interpretation may well be considered.

Eyes and Ears.—Auditory and visual impairments should be judged on an individual basis both with respect to the impairment and to the job. With respect to all job classifications herein

listed, binocular vision is essential except in blueprinting. In noisy trades, such as riveting, applicants with a history of total nerve deafness or with a partial nerve deafness are not acceptable, but applicants with partial deafness which is due to an obstructive middle ear condition are acceptable.

Chest.—A routine 35 mm. *chest* film is desirable as a screening process. Definitely arrested tuberculosis is acceptable for certain occupations. The Westinghouse Electric and Manufacturing Company produces a 35 mm. x-ray for chest films and the General Electric Company makes a smaller outfit for four-by-five-inch chest films. This type of equipment is expensive and can be obtained only under the higher priority ratings. It has also been suggested that a routine Mantoux test be done on all applicants.

Heart.—Applicants with organic heart disease who have compensation, judged to be adequate for certain employment requirements, should be acceptable if they have shown no peripheral signs and have experienced no pain episodes for a period of six months.

Serology.—A serologic test should be made if facilities are available. Positive findings with no open or disabling lesion or sign of neurosyphilis are acceptable provided proper therapy is received under the supervision of the medical office. Positive serology (4 plus) in asymptomatic individuals should require a Kahn verification test.

Urine.—The presence of sugar, marked traces of albumin, pus, blood, or casts calls for further investigation to determine the cause. Such applicants should be acceptable for special assignment if the sugar threshold has been determined and insulin therapy established. Those with moderate serum albumin with hyaline and granular casts and a high total blood nitrogen should be deferred for more complete investigation if industrial needs justify. Persistent pus with intracellular diplococci should be regarded as indicative of active disease and applicants should be deferred until this condition is cured. Persistent pus without demonstrable source should be cause for deferment for more complete investigation if industrial needs justify.

The proper appraisal of physical requirements, the placing of individuals who are impaired physically or mentally, can best be accomplished provided there has been

1. A reasonable appraisal of the physical needs of the various positions through job analysis of a limited number of the items of physical or mental fitness.

2. Coordination of training, recruitment, and placement programs.

3. An intelligent program for the purpose of convincing the employer of the prospective employee's qualifications, expressed in terms of ability to perform in contradistinction to the physical needs of the job.

4. Coordination between the medical office, the employment office, and the management heads of the main departments together with their medical and safety advisers.

These specifications have been quoted from an article by Verne K. Harvey, published in State Operations Bulletin 10, Bureau of Employment Security, Federal Security Agency, Washington, D.C., entitled *The Physically Handicapped in Industrial Establishments of the Government.* In considering the general subject of placement of women and the physically handicapped, the practices of the United States Civil Service Commission are well worth having in one's operating files for reference purposes.

It will be noted that in the brief summary of items of physical impairments acceptable for certain types of employment such impairment factors must be considered as of the nature of samples, and that it is perfectly obvious in the wide range of employment opportunities for certain other, and perhaps more complex items of impairment, to be brought into consideration before a final opinion as to employability is rendered.

As a matter of fact, it should be possible to make some such generalized statement as to employability as the following: that applicants for employment should not be acceptable at the time of examination if there is present (1) uncompensated cardiac or cardiovascular disease; (2) active chronic or acute infectious disease; (3) metabolic disease, progressive and without adequate therapy; or (4) unadjusted mental disease.

Finally, it is to be hoped that in the postwar reconstruction period, and perhaps through the succeeding generations, there will be a liberalized regard with respect to the employment of impaired persons, including, besides those selected by preplacement schedules, the large number of war casualties who must find places in the industrial machinery of the country. In dealing with this obviously increased number of individuals impaired, both physically and mentally, industries should cooperate wholeheartedly with the great public health organizations of the several states and the government in keeping abreast of the impairment situation in the general population as well as among employees. It therefore becomes necessary to have workable and, at the same time, low-cost routines for the periodic physical inventories of this army of the nation's substandard, in both the civil and industrial population.

MEDICAL ASPECTS OF ABSENTEEISM IN INDUSTRY

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DURING the past seventeen months, absenteeism has gradually taken on a new and somewhat ominous meaning, but unfortunately the discussion of the problem in the public press or on the radio has generated more heat than light. On the one hand, we are told that the continued absence of skilled workers from their posts in factories and plants is seriously interfering with the production of the ammunition and machines of war that must flow to our soldiers and sailors abroad in a never-ceasing stream if they are to prevail over the formidable forces that are arrayed against them. On the other hand, we are assured that when men do stay away from work, it is usually owing to inadequate transportation facilities, shortage of housing, and lack of the ordinary conveniences of life.

No doubt there is some basis for both these contentions, but the fact remains that no one can say with certainty just what is the true state of affairs, for complete and dependable information is not available. But we do have reliable figures on the amount of time that is being lost in some industrial organizations because of sickness and accidents, and we do know that some groups of diseases cause more disability than others. After analyzing these figures, we may be able to reach some conclusions as to how medical knowledge and surgical skill can be used to reduce absenteeism and to help men and women to stay on the job.

But first a note of caution. Absenteeism is a word which should be used with due care by a physician lest he be thought to be lacking in sympathy toward those who need him most. Always a term of reproach, it was applied during the French Revolution to those members of the landed nobility who preferred to while away their time among the splendors of Versailles. In Ireland and in Russia it was applied to landlords who deserted their estates to live abroad. But now this ancient charge of irresponsibility is being applied to those members of our working population who fall behind in the present race for production and more production. In short, absenteeism is fast becoming a fighting word, and any physician who uses it had best say it with a smile.

Certification of Disability

If a physician who has been called upon to express an opinion as to whether a man is physically able to work makes a sincere effort to be considerate and fair, a mere error of judgment will be forgiven him. But, if he does not weigh his words or does not give careful consideration to all the evidence that is available to him at the time he is apt to find himself in a vortex of a little cyclone. On the one hand, he must realize that the purpose of any industrial organization is the production of material goods and services through the combined efforts of many hands; on the other, he must remember that what is good for the company is not always best for the individual.

This conflict of interests, however, is more apparent than real; for the maintenance of the employee's physical fitness is important from both points of view. A good rule to follow, in deciding whether to send a man home or to certify him for return to work, is to adopt the course that will bring him back to normal efficiency in the shortest possible time. After all, any time that is lost from work is lost for all time; or, as an old saying has it: "Lost somewhere between sunrise and sunset, two golden hours, each set with sixty diamond minutes. No reward is offered for they are gone forever."

Statistics on absenteeism fall far short of what could be desired when they represent decisions made by laymen who are not qualified by training or by temperament to decide such questions. The certification of disability because of sickness or accident is a medical function, and even a physician needs to know a good deal about some cases from the very beginning.

Employees who become sick while at work should be required to see the physician or the plant nurse before they go home. Employees who are taken sick while at home should be required to report by telephone on their first day out.

The plant nurse should visit them promptly and frequently, urging them to call their family physician when necessary. Also, she should get them to report to the plant as soon as they are well enough to do so in order that the plant physician, with the employee's complete medical record before him, can determine the diagnosis and the period of disability with some degree of accuracy.

Dependable figures of this sort are particularly useful in large organizations, where it is often desirable to compare the results obtained at one plant with those obtained at another. Comparisons of this sort are very helpful in that they often bring to light conditions that can be cor-

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rected, with the result that a better showing is made the following year.

Disability Rates

During 1942, among 15,100 employees, there were nearly 100,900 calendar days of disability. This corresponds to an annual rate of 6,670 days lost per 1,000 employees from all causes. Most of this disability was due to sickness, which was responsible for 5,980 days lost, or nearly 90 per cent, of the total. Here lies the industrial physician's greatest opportunity, but his success will depend to a large extent on the types of disease that prevail among those who are under his medical supervision.

Respiratory Diseases

The respiratory diseases are of the greatest importance, for, during the past year, they were responsible for 1,740 days lost, or over one-fourth of the total. Of this, 972 days lost were due to influenza and the common cold, 294 days lost to bronchitis, and 154 days lost to pulmonary tuberculosis. At the plants located in the northern section of the country, respiratory diseases, including influenza, were responsible for twice as much disability as in the South. This discrepancy was, no doubt, largely due to the differences in climate. Where the winters are long and cold, people have to keep their windows shut much of the time to save fuel, thus creating conditions which are favorable for the spread of respiratory infections. At the movies and in the busses that carry them to and from work conditions are even worse.

Whether these diseases will be controlled some day by disinfection of the air we breathe with aerosol sprays and ultraviolet lamps or by the development of more effective vaccines remains to be seen. Certainly this is a matter of tremendous importance to industry, for the respiratory diseases are at present the most serious threat to production.

Digestive Diseases

The gastrointestinal diseases were responsible for 1,240 days lost, or about one-fifth of the total. In this group, peptic ulcer came first, with 159 days lost, followed closely by appendicitis, with 144 days lost. Then came gastroenteritis, with 94 days lost, and gastritis, with 76 days lost.

It is not strange to find gastroenteritis more prevalent in the South, where the warm climate makes it more difficult to keep food from spoiling, but it is surprising to find both peptic ulcer and appendicitis twice as disabling in the northern plants. This deserves further study, especially as an increase in disability from digestive diseases last year was reported by many industrial organizations.

TABLE 1.—Calendar Days of Disability
Annual Rate per 1,000 Employees

All Causes	6,670
Sickness	5,980
Respiratory Diseases	1,740
Influenza	600
Common cold	372
Bronchitis	294
Tuberculosis	154
Other diseases	320
Digestive Diseases	1,240
Peptic ulcer	159
Appendicitis	144
Gastroenteritis	94
Gastritis	76
Other diseases	767
Cardiovascular Diseases	856
Coronary diseases	306
Arteriosclerotic heart	168
Hypertension	166
Other diseases	216
Contagious Diseases	123
Syphilis	84
Malaria	20
Undulant fever	7
Measles	6
Other diseases	6
Nonindustrial Injuries	385
Industrial Injuries	306
Fractures	130
Tear of ligament (sprains)	43
Burns	40
Other injuries	93

Although digestive diseases are not so serious a threat to production as respiratory diseases, they, too, offer a great opportunity for the reduction of time lost from work. Indeed, it is fortunate that these two groups of diseases are more prevalent at different times of the year, for that makes it possible for plant physicians to give more attention to digestive diseases in the summer, when respiratory diseases are at an ebb. With the increased interest in diet throughout the country and a better understanding of the effect of strong emotions on the digestion, it seems quite likely that in the next few years some headway can be made in the control of disability from this group of diseases.

Cardiovascular Diseases

As regards diseases of the circulatory system, the outlook is not so promising. Last year they were responsible for 856 days lost, or about one-eighth of the total, but they are certain to increase with the steady rise in the average age of the population. The chief causes of disability in this group were: coronary disease, with 306 days lost; arteriosclerotic heart disease, with 168 days lost; and hypertensive cardiovascular disease, with 166 days lost. Taken as a whole, this group of diseases has a disability rate in the North about 70 per cent higher than in the South.

Coronary disease is listed (see Table 1) separately from arteriosclerotic heart disease to indicate the relative importance of those cases in

which there were convincing signs of coronary involvement, such as the typical electrocardiographic changes. It may be surprising to some to find that this one disease is such an important cause of sickness disability. In our experience, it is surpassed in this respect only by influenza and the common cold.

Contagious Diseases

Passing mention should be made of certain reportable diseases, whose prevalence is an index of the effect of public health standards in the surrounding communities. By good fortune, no time was lost because of malaria, undulant fever, or measles at four northern plants last year, but in the South all three diseases caused a certain amount of disability. No doubt this was due to the prevalence of mosquitoes and of rats and perhaps to inadequate quarantine enforcement in communities nearby. Even for syphilis, which leads the list with 84 days lost, the picture is much the same, for of the eight cases which resulted in loss of time from work, seven were in the South, and only one, and a late manifestation at that, occurred at the northern locations. As this difference holds for previous years as well, we have taken the position that routine blood tests are of more practical value in the South, where this disease is more prevalent.

Industrial Injuries

In comparison with all that has gone before, industrial injuries, with the low disability rate of 306 days lost, or but one twenty-second of the total, were relatively unimportant. Due credit should be given to the successful application of the modern principles of safety engineering, which have made our factories safer places than the employees' own homes. But, at the same time, there have been great advances in our surgical methods.

Last year, burns were responsible for only 40 days lost. They are certainly being treated more successfully than ever before, what with plasma to carry the more serious cases safely through the dangerous period of primary shock, compression bandages to prevent the continued loss of fluid, and the sulfa drugs to protect the burned area from secondary infection. These three advances in therapy not only save many lives; they also accelerate the in-growth of the epithelium and hold the formation of scar-tissue and contractures to a minimum.

Fractures were responsible for 130 days lost, and sprains for 43 days lost. Here again, better results are being obtained, especially in plants where x-ray facilities are available. Take, for instance, the case of a skilled lathe operator, who steps backward off the low platform in front of his machine and comes down hard on the outer side of his foot. If he says nothing about it, and sticks at his job, he may limp back and forth at his post for months, turning out less work and having much of it rejected by the inspection department. But let us assume that he reports promptly to the medical office, where an x-ray shows a transverse fracture near the base of the fifth metatarsal. A plaster cast is applied to the foot before it has a chance to swell, and the broken bone is held firmly in position for two or three weeks. At the end of that time, another x-ray shows that firm union is taking place, and he goes back to his machine, where he is soon turning out as much good work as ever. In this case, a few weeks of total disability prevented months of partial disability.

Or take the case of a laborer who hangs on to his end of a beam after the other fellow lets go. He feels something snap in his back, but the x-ray is negative. The plant physician, convinced that torn muscle fibers heal more rapidly under absolute rest, sends the patient home, telling him to lie flat on his back for a week, with a board under the mattress. This makes a lost-time case out of an apparently trivial injury, and yet when the man returns to work his lumbar muscles are free from spasm and his back is soon as strong as ever. In this case, a few days spent in bed effected a cure that was both prompt and complete.

But it is not always wise to keep an injured employee out of work until the healing process is complete, for during a long period of enforced idleness a man may lose his ability to work. After a serious injury, such as a compound fracture of the tibia, the patient should be provided with special light work as soon as possible, lest he lose the power to earn his livelihood. In this case, the period of total disability will of necessity be followed by a prolonged period of partial disability.

Partial Disability

Many cases of sickness and accident that result in loss of time from work are ushered in by a prodromal period of declining physical efficiency, and they are often followed by a period of recovery, during which efficiency slowly returns to normal. Influenza is usually characterized by a sudden onset and a delayed recovery, peptic ulcer by an insidious onset and a recovery that is fairly prompt under adequate treatment. However, the duration of partial disability does bear some relationship to the period of total disability. Just as every eclipse has its penumbra, so every period of total disability lies within a shadow of partial disability, whose duration is roughly proportional to the seriousness of the case. Thus, even after taking partial disability into considera-

tion, the number of days lost from work is the best yardstick we have for measuring the effect of sickness and accident on production within an industrial organization.

Conclusions

Of the total days lost from work in this country for medical reasons, less than 5 per cent were due to industrial injuries, and nearly 90 per cent were due to sickness. Cardiovascular diseases were responsible for about 13 percent, digestive diseases for nearly 19 per cent, and respiratory diseases for more than 26 per cent.

Surely it is not too much to hope that, as the water-borne diseases have ceased to be a problem in this state, just so, air-borne infections, whether due to bacterium or virus, can be brought under control by coordinated application of medical science, especially in industrial establishments, where so many of our men and women are employed.

But, when all is said and done, the most important service that a physician can render to industry is in clearly distinguishing absence from work on account of sickness or accident from absence for personal reasons. A certain degree of success has been obtained along these lines in some industrial organizations. In fact, where complete medical supervision is available, it is safe to say that whenever a skilled workman is missing from his post, six times out of seven it is because of genuine physical disability.

NUTRITION FOR THE AVIATOR

Lieut. Howard R. Bierman, Medical Corps, U.S. Naval Reserve, has pointed out in a recent article in *War Medicine* that much remains to be done in the field of nutrition in aviation.

According to Dr. Bierman, a regimen of small, frequent feedings is recommended for the aviator, especially when he is on active combat duty.

A high protein diet is to be preferred both for its value in helping to maintain body temperature and also for its easily digestible qualities. Carbohydrates should not exceed 50 per cent of the calories and fat should be limited to 1.5 to 2 Gm. per kilogram. Calcium, copper, iron, and chlorides are the important minerals in an aviator's diet.

A high fluid intake is also recommended, although both coffee and tea should be limited somewhat and cocoa, milk, and fruit juices substituted.

Dr. Bierman also reports that since at 18,000 feet the atmosphere is at twice the pressure that it is at sea level, there is a corresponding expansion of gas in the intestines. If the distention reaches serious proportions, as it may at high altitudes, abdominal cramps and other discomfort will result. Gas-containing foods should therefore be avoided.

RIGHT ANGLE FOR READING

Hold your book or newspaper at right angles to the line of sight if you want to read it most easily. So advises Dr. Matthew Luckiesh, director of the lighting research laboratory of the General Electric Company.

In the new book *Reading as a Visual Task*, which he wrote in collaboration with Frank K. Moss, Dr. Luckiesh explains that the practice of laying a book or newspaper flat on a table and reading it at an angle may reduce the visibility of the print as much as one-third. This is an effect of the foreshortening of the type when the reader is not looking at it squarely.

"Assuming that the visibility of a given ten-point type is 100 when placed in a plane perpendicular to the line of sight," he says, "its visibility would be reduced to 70 per cent when the printed page is inclined at an angle of 135 degrees with the line of sight. In other words, seven-point type in the normal position is as visible as ten-point type on a page inclined 135 degrees with the line of sight. If the posture of the reader remains unchanged, the latter condition would result when the reading matter is placed flat on the desk."

PREVENTION IS THE AIM

Tuberculosis has retreated and is still retreating before a prolonged and sustained attack upon the pulmonary form of the disease. Fifty years ago a few zealots began to shout in the wilderness that "consumption" could be cured! Gradually they attracted attention, sympathy, support; and at last they were rewarded by the acceptance of their principles as a legitimate part of the order of the day. About them there appeared those little parasitic enterprises that always attach themselves to successful ventures; but the faddists came and went, while the movement stabilized itself and grew. Soon it was found that efforts directed toward the cure of the disease were effective also in preventing it; prevention then became the aim; and now that preventive measures are proving more and more successful, the goal has been shifted to eradication. Today tuberculosis workers are an established group of specialists, already divided into their own subspecialties; and tuberculosis control, no longer merely a movement, has been integrated into every sound public health program—a recognized public health responsibility of every community.—*From Air-Borne Infection, by* DWIGHT O'HARA, M.D.

ANESTHESIA FOR THORACIC SURGERY IN THE ARMY

STEVENS J. MARTIN, Maj. (MC), AUS

IT IS a well-established fact that military campaigns stimulate medical progress. Among other specialties, some of the greatest advances have been made in thoracic surgery and anesthesiology since World War I. Because of the fact that many problems concerning the pathologic physiology of the thorax are common to both specialties, the advances and/or necessities of one have become of benefit to the other. Progress was inevitable.

Chest injuries have occurred in all American wars,[1-3] contributing materially to the high rate of morbidity and mortality of the wounded. In one of the most extensive analyses,[4] it has been reported that of the 11,000,000 wounded American, English, French, and German soldiers of the last war, 6 per cent had thoracic injuries, of which total more than half (56 per cent) died. The increased frequency and severity of such wounds in succeeding wars have now definitely been correlated with the use of bullets and shells with a high explosive velocity. With the tremendous development of such weapons, as well as of fragmentation bombs, booby-traps, and four-ton blockbusters in the present conflict, even if such missiles contain no poison gas, the incidence of thoracic injuries may be expected to be appallingly high. When it is further realized that 25 per cent of the patients with chest injuries die[5] before they even reach the collecting station, the significance of the problems of thoracic surgery and anesthesia in military medical units can be more fully appreciated.

In all major thoracic injuries, there are not only problems of tissue damage, blood loss, and possible infection to contend with but also the immediate, serious, and often fatal intrinsic disturbances of circulation and respiration. The latter are of vital concern to the anesthetist, and a prompt and thorough appreciation of the underlying pathologic physiology of the effect of thoracic wounds is imperative in providing ideal anesthetic management. From this point on, however, the approach of the military anesthetist will differ somewhat from that of his civilian confrere. An attempt has been made in this paper (1) to outline some of the factors concerned in this difference and (2) to suggest anesthetic management of combat chest casualties consistent with these factors.

From the Surgical Service, Tilton General Hospital, Fort Dix, New Jersey.

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Factors Concerned

We can feel proud of the comforting fact that of all armies the American Army provides the most modern and thorough medical treatment of its wounded. Such care begins on the battlefield and extends to the final disposition of the patient. Because of the more serious consequence of thoracic injuries, this is often a Herculean task. The many factors which intervene in the prompt management of such injured vary in degree and depend upon season, climate, time of day, and the location and terrain of battle. Any one may temporarily dominate or overshadow all others. Some of these factors are:

1. Type of Thoracic Injury.—While it is difficult to enumerate all the conceivable types of chest casualties that occur in battle, the following more commonly expected ones, as well as their treatment, may be mentioned.[5]

(*a*) Conditions requiring surgical treatment:
- (1) "Sucking wounds" of chest wall
- (2) Tension (or pressure) pneumothorax
- (3) "Stove-in" chest
- (4) Cardiac tamponade
- (5) Penetrating wounds of chest
- (6) Exploratory thoracotomy—suspected critical intrapleural hemorrhage
- (7) Hemothorax
- (8) Subcutaneous and/or mediastinal emphysema
- (9) Infected hemothorax
- (10) Miscellaneous
  - a. Rupture of diaphragm with herniation
  - b. Infections: empyema, lung abscess, etc.

(*b*) Conditions requiring nonsurgical treatment:
- (1) Thoracic concussion—similar to cerebral concussion
- (2) Traumatic asphyxia—sudden, violent, *thoracic compression*
- (3) Blast injury—thoracic impact from shell of high explosive velocity
- (4) Gas casualties
- (5) Atelectasis and/or pneumonitis

2. Severity of Injury.—Thoracic wounds will vary in severity, depending upon the weapon employed and whethere xtra- or intrapleural structures are involved. No imagination is required to appreciate the traumatic possibilities.

3. Accompanying Injuries and Condition of Patients.—Aside from thoracic wounds per se, other factors, such as shock due to injuries to other parts of the body, physical exhaustion,

inanition or exposure to extremes of temperatures, sand- or snowstorms, and tropical diseases, will play an important part in the anesthetic management of the wounded.

4. Time Interval Between Injury, Diagnosis, and Treatment.—This factor, as surgeons will appreciate, is perhaps the most important one in the effective treatment of major chest injuries. As in civilian practice, delay aggravates the problems of both the surgeon and anesthetist. Provisions have been made by the Army to minimize this factor by dispatching mobile auxiliary surgical teams (thoracic), including an anesthetist, to the forward areas. The surgeon and the anesthetist are thus brought to the patient!

5. Number of Thoracic Cases.—Battles are engaged with personnel en masse and consequently the wounded will be found in large numbers. As in the last war, medical installations will either be in a state of readiness or will be deluged with casualties. Individual anesthetic problems of thoracic injuries thus will be compromised by those of the entire group.

6. Weapons or Methods Used to Cause Injury.—The immediate considerations of this factor in thoracic injuries are internal hemorrhage and damage to the cardiorespiratory mechanism. The surgeon and the anesthetist are vitally concerned with both. A knowledge of whether a piercing bullet, bayonet thrust, imbedded shrapnel particle, or distant concussion bomb produced the injury will help to clarify such considerations. As pointed out by Brodkin,[6] a pneumonectomy may be necessary to control hilar hemorrhage to save life even after a simple gunshot wound.

7. Medical Service Available.—The high degree of efficiency of the Army Medical Corps has been developed through years of study, experience, and competent organization. Its functions comprise not only the administration of first aid on the battlefield but also problems of evacuation to the rear and hospitalization for continued and definitive treatment. The entire medical service is divided into five echelons, the first three of which are mobile attached to tactical troops and the last two are stationary or relatively fixed medical installations[7] (Chart 1).

The unit medical service, being 300 to 800 yards behind forward moving infantry, receives wounded by litter and provides emergency treatment, in addition to the first aid that is given on the battlefield. It will control external active bleeding, cover "sucking wounds" of the thorax, strap "stove-in" chest walls, apply splints and bandages, and administer opiates, blood plasma, etc., in preparation for evacuation. In divisional units, about 1,200 to 3,500 yards back, emergency

CHART 1.—Outline of Medical Service of the Army.

	Medical Services	Type
I.	Unit: medical battalion, aid station	Mobile
II.	Divisional:	Mobile
	A. Collecting and clearing stations	
	B. Surgical hospitals, Army supporting	
III.	Army:	Mobile
	A. [illegible]	
	B. [illegible] stations	
	C. 3rd Echelon—surgical and evacuation hospitals	
	D. 4th Echelon—general hospitals, field	
	E. 5th Echelon—evacuation to zone of interior	
IV.	Theater of Operations: territorial commands	Fixed
	A. Numbered general hospitals	
	B. Numbered station hospitals	
V.	Zone of Interior: Surgeon General	Fixed
	A. Named general hospitals	
	B. Named station hospitals	

treatment is continued and patients are sorted, retained, or prepared for further evacuation. While medical officers and anesthetic agents are available in all echelons and immediately behind any fluid front, the competent thoracic surgeon and anesthesiologist are first found in installations of the medical service of the Army. Many of these, like the surgical and evacuation hospitals, may be several miles to the rear. On occasion, auxiliary surgical teams (thoracic) may be dispatched to forward divisional areas for emergency surgery such as intrapleural hemorrhage, etc. Major thoracic surgery thus can first be accomplished by installations of the Army Medical Service. More elective and definitive thoracic procedures are taken care of by similarly specialized personnel of the medical service of the theater of operations and/or the zone of interior. In general hospitals, the organization and equipment are very similar to those in our leading university and civilian medical institutions.

Anesthetic Management

It is most unwise, if not impossible, to prescribe dogmatically, and with any degree of safety, the anesthetic agent and technic to be employed for a particular type of thoracic surgery in a medical unit. However, certain generalizations and preferences may be stated. Their appreciation will admittedly depend upon the training of the anesthesiologist, his clinical experience, technical ability, and maturity of judgment. They will be discussed with respect to the type of medical echelon treating the chest casualty and the prescribed and available anesthetic armamentarium.

1. Unit and Divisional Medical Services.—These units, designed essentially to provide emergency treatment to the wounded and prepare for their evacuation, are supplied with morphine

sulfate, atropine sulfate, ethyl chloride, ether, ephedrine, procaine, barbiturates, and a Yankauer mask, among other supplies. While anesthesia may be obtained for any painful procedure, there is neither equipment nor specialized medical personnel for major thoracic surgery. Such short procedures as might be necessary can be carried out either with procaine hydrochloride, 1 per cent, for regional anesthesia or ethyl chloride-ether for open-drop inhalation anesthesia. This will be subject to the contraindications and limitations accepted for these agents. Every effort should be made to obtain rapid recovery from anesthesia to facilitate evacuation. Notwithstanding the delayed emergence of the patient from ether, this agent, as in the last war, will be commonly used for anesthesia in these forward units because of its relatively wide range of safety and its other advantages.[8]

2. Army Medical Service.—Competent thoracic surgeons and anesthetists are assigned to medical units of this echelon, such as surgical and evacuation hospitals and auxiliary surgical teams. Accordingly, major thoracic surgery can be accomplished. Anesthetic supplies include, in addition to those noted above for smaller medical units nitrous oxide, oxygen, sodium pentothal, chloroform, needles for subdural anesthesia, pharyngeal airways, and apparatus for closed-system inhalation anesthesia. Modified suction apparatus has been improvised. Laryngoscopes and endotracheal tubes have been used and are either of recent issue or have been donated.[9]

For *extrapleural* procedures of short duration unaccompanied by shock or respiratory dysfunction, local infiltration with procaine, nitrous oxide, ethyl chloride, ether, or sodium pentothal may be employed to obtain anesthesia. Considering factors of simplicity of technic and equipment, margin of safety, and, above all, the possible necessity of using enlisted men to give anesthesia for mass casualties, open-drop ether has been and will be the method of choice in field units.[8] If cardiorespiratory complications, such as shock and bronchitis, are present in extrapleural cases, the anesthetic management, other than alleviation of such disturbances, will depend chiefly upon the severity of the patient's complications and his state of consciousness. Little or no premedication may be adequate; regional anesthesia with procaine solution after premedication may suffice; open-drop ether in incipient cases of shock has been employed with success. Nitrous oxide-oxygen or ethyl chloride should not be used because of their respective hypoxic and myocardial effects. Sodium pentothal given intravenously may be used[10] in these cases but only if oxygen can also be administered by the closed system with controlled respirations to facilitate ventilation. Such oxygen administration may be given for the alleviation of complications per se, but it is not practical with mass casualties. Spinal anesthesia should not be employed for any thoracic procedure.

In cases requiring *intrapleural* surgery, whether short or prolonged, with or without shock or other severe complications, the use of an endotracheal tube with an inflatable cuff with the Waters carbon-dioxide absorption system[11] of inhalation anesthesia is ideal if not imperative. This procedure, as is well known,[12,13] will not only minimize heat and water loss, but will also assure adequate ventilation and permit control of anesthetic concentration and intrapulmonic pressure. Controlled and positive-pressure respiration is possible to aid the patient as well as to facilitate the technic of the surgeon in placing ligatures near the hilum, pleura, etc. Furthermore, the removal of secretions, blood, or cell detritus is facilitated with the aid of catheter suction through the endotracheal tube. Upper respiratory obstruction, hypoxia, or acapnia are prevented. The use of the endotracheal tube by the well-equipped anesthetist with the administration of ether by the closed system should provide maximum safety in intrapleural surgery in field units. Nitrous-oxide oxygen alone would have to be administered at an hypoxic level to eliminate the stimulation by the endotracheal tube on the laryngeal mucosa. In pentothal anesthesia, the elimination of such irritation would require large doses, which would result in severe respiratory depression requiring continuous controlled or artificial respiration during and after surgery. Ethyl chloride should never be given by the closed system or for prolonged procedures. In cases of incipient shock, in which intrapleural or pericardial surgery is urgent, the use of ether with the endotracheal technic should, in field installations, take precedence over other agents mentioned.

Often endotracheal technic is not possible in field medical units, in which case the use of a pharyngeal airway will have to suffice. The open-mask method of ether administration, or nitrous-oxide oxygen-ether closed system or insufflation technic, or intravenous anesthesia can be used. Occasionally, the less desirable agents, such as chloroform and ethyl chloride, will be the only ones available and may be used successfully.[14] It must be emphasized that field anesthesia, like field surgery, may not be ideal but is often a matter of necessity.

3. Medical Service of Theater of Operations.—Thoracic surgery at these medical units is more elective but not entirely definitive. Competent surgeons and anesthesiologists, along with more specialized equipment and assured supplies, will

carry on. Patients will have received the benefits of prompt emergency treatment and, in general, will be in decidedly better condition than in the most forward echelons. The same anesthetic agents will be available. The selection of agent and technic will be essentially the same as that noted in the Army Medical Service, except for the addition of block technics for extrapleural procedures and more frequent use of nitrous-oxide oxygen-ether sequence with the closed-system endotracheal technic. It has been reported that cyclopropane has been obtainable and has been used.[9]

4. Medical Service of the Zone of Interior.—Military anesthesia is as modern and as advanced in medical units of this echelon as that used in civilian hospitals. Equipment and the supply of agents are adequate in all organized units, and modern and complete anesthetic management will be possible. Surgery will be elective and definitive for the most part, and patients, except for local emergency cases, will be in fair to excellent conditions. Preoperative preparation, such as correcting weight loss and anemia, use of postural drainage, atropine, etc., will not be interfered with by the necessities of treating and evacuating mass casualties.

In addition to the ether endotracheal anesthesia for intrapleural procedures found so satisfactory in field hospitals, cyclopropane has also been used at many fixed posts.[15–17] This established anesthetic agent, accepted by the Council of Pharmacy of the American Medical Association, has been commonly used for thoracic surgery throughout this country[18–22] and abroad.[23–25] That it is far superior to ether in thoracic surgery has been claimed by leading civilian anesthesiologists.[18–22,26]. Its advantages over ether of being nonpungent, nonirritant, facilitating speedy induction and recovery, providing more rapid control of level of anesthesia, and producing less postoperative nausea, vomiting, temperature, and fluid loss are now fully appreciated by the thoracic surgeon as well as the anesthesiologist. This is attested by its growing popularity in chest clinics during the last ten years. Its disadvantages of potency and explosiveness have been seemingly more apparent than real. Both ether and cyclopropane are potent and explosive.

Ether,[26–28] nitrous oxide,[29] ethylene,[30] and nupercaine[31] have been considered more satisfactory than cyclopropane for thoracic surgery or for cases with pulmonary tuberculosis.[32] Inasmuch as it was claimed that clinical results with the use of ether or other agents were found apparently more gratifying than those with cyclopropane, there appears to be no justification for change. Even though it is believed by the majority of civilian anesthesiologists that the authors mentioned are unduly enthusiastic, the anesthesiologist should use the agent and technic which in his hands and experience will provide the most satisfactory anesthesia for the wounded.

Discussion

Military surgery and anesthesia are influenced by dynamic elements of combat. The use of certain anesthetic agents and technics by the Army is often a matter of necessity rather than of choice. This may be more fully appreciated when one realizes that, aside from the various factors operative in the field, anesthetic supplies possibly may be damaged, destroyed, or lost. Accordingly, the military anesthetist must be practical as well as ingenious in individualizing the management of his case, not only as in civilian practice but also with due regard to existing circumstances. Deviations from principles and technics will become necessary.

Emphasis has been given to the echelons of the medical service of the Army. Adequate thoracic surgery or ideal anesthesia obviously cannot be carried out on the firing line but must depend upon the organization of a competent medical service. Such organization has been perfected by the Army and found ideal for the care of the wounded. Thoracic surgeons and anesthetists are now available for emergency surgery in teams or as part of surgical hospitals within relatively short distances from the front. To the rear, elective and definitive surgery can be accomplished with anesthetic armamentarium simulating that found in civilian institutions.

Basic anesthetic equipment has been available to mobile and fixed medical units. In fact, a great deal of nonstandard apparatus has also been provided in the past. However, it may be safely predicted that many improvised anesthetic machines and gadgets will result from the factors of sheer necessity and ingenuity.

No attempt has been made to discuss aspects of emergency treatment which the anesthetist may take care of. As emphasized by Tynes, *et al.*,[33] such treatment particularly referable to combating shock and respiratory derangements is part of the preoperative program of anesthetic management. The use of premedicant drugs, which are available in all medical echelons, should follow the principles established in the civilian practice of anesthesia. Morphine and atropine or scopolamine in a ratio of 25:1 should be given subcutaneously sixty to ninety minutes before surgery under inhalation anesthesia. Barbiturates for hypnosis and prophylaxis prior to regional anesthesia should be administered thirty minutes before surgery. Tracheal toilet[34] before, during, and after surgery may be essential.

In consideration of the choice of anesthetic management, due respect was given to the type of thoracic injury present, the availability of personnel, equipment, and supplies, and accompanying complications of shock and respiratory dysfunction. Barring contraindications, the following procedures, in order, were suggested:

For extrapleural procedures:

1. No anesthesia if patient is unconscious.
2. Premedication only—may be entirely adequate.
3. Local infiltration or block procedures.
4. Open-drop technics with ethyl chloride and/or ether.
5. Sodium pentothal if available.

For intrapleural procedures:

In mobile hospitals:

1. Any one of the above may be the only procedure possible.
2. Ether with Waters' closed carbon dioxide absorption system and endotracheal tube with inflatable cuff.

In fixed hospitals:

1. Cyclopropane[15,25,35,36] with Waters' closed carbon dioxide absorption system and endotracheal tube with inflatable cuff.

In any of these procedures, the Army anesthetist must remember that thoracic surgery ideally calls for (1) analgesia, or light surgical anesthesia, (2) a patent airway, (3) adequate gas exchange, (4) as nonirritating an agent to the respiratory mucosa as it is possible to obtain, (5) rapid induction and recovery, (6) early return of the cough reflex, (7) quiet respiration, (8) minute-to-minute control of depth of anesthesia, (9) means for controlled or positive-pressure respiration, (10) repeated tracheal toilet, (11) postoperative rebreathing, and (12) oxygen therapy if necessary.

In making these suggestions, it was assumed that operative intervention was necessary only for thoracic injury. No mention was made of patients with injuries of the head, abdomen, or extremities who also may suffer from thoracic wounds requiring conservative, nonsurgical treatment. Patients with thoracic concussion and blast injury should not receive inhalation anesthesia, for the thoracic cage and pulmonary alveolar bed should be kept at basal conditions. Emergency surgery in such cases will be more satisfactorily done with the aid of regional, intravenous, or low spinal anesthesia, depending upon contraindications. Such problems are admittedly acute and tax not only the anesthetist's clinical judgment but also the limits of the field of anesthesiology. Suffice it to say that the armed forces have spared nothing in providing anesthesiologists with modern methods to aid the thoracic surgeon in the adequate treatment of the wounded for the conservation of manpower.

Summary

The army anesthesiologist is playing a significant role in contributing to the modern and efficient medical service of the Army. His problems referable to thoracic surgery have challenged his training, ingenuity, and practical sense. Some of these, concerned with (1) factors influencing the surgical treatment of chest wounds and (2) suggested anesthetic management, have been discussed in an attempt to correlate his activities and to indicate his usefulness and limitations in providing the safest and most modern anesthesia.

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THE EFFECT OF THE ANTEPARTUM ADMINISTRATION OF QUININE ON LABOR AND THE PUERPERIUM

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IN THE early years of the last decade, there appeared in the *British Medical Journal* several enthusiastic reports on the advantages of prescribing quinine daily in small doses during the last few weeks of pregnancy. Hewetson,[1] Green-Armytage,[2] Mitchell,[3] Mitchell and Bradbrooke,[4] and Johnston[5] were the principal contributors to this subject and made the more important claims and recommendations for its widespread use. In this country Linton Smith[6] was the first to report any experience with the use of quinine as recommended by the British writers and from his account was as enthusiastic as they about the results.

These authors initiated their experiences on the basis that pharmacologically quinine has been shown to have general tonic properties and in small doses or weak concentrations has a directly stimulating effect on involuntary muscle, particularly on the smooth muscle of the uterus. Furthermore, they were impressed by reports which came from the malarial districts in Rhodesia and India in which it was stated that patients who were given prophylactic doses of quinine during pregnancy had easy and uneventful labors. Then, from their own experiences, it was generally concluded that the antepartum administration of quinine hydrochloride or sulfate three to four weeks before the expected date of confinement, given daily in divided doses not exceeding 5 grains, would shorten labor and make it easier, would reduce the incidence of infection, and would considerably improve the course of the puerperium.

Only Buddee's[7] contemporaneous experiences and observations were not in full agreement with these claims. He stated that the effect of quinine on the duration of labor was of doubtful value, that the drug did not eliminate primary uterine inertia, but that its general tonic effect might be of beneficial value in reducing the susceptibility to infection. Buddee's conclusions were criticized because he gave 5 grains of quinine in one dose rather than in divided doses of 1½ grains three times a day.

Unfortunately, the convictions and good results of these workers were not substantiated or supported by adequate clinical and statistical data In most instances, the number of cases studied either were too few in number or were not compared with a current number of control cases.

However, it did appear that if such an uncomplicated and presumably harmless course of medication in the antepartum period shortened the duration of labor, reduced the incidence of the application of forceps, reduced postpartum hemorrhage, diminished puerperal morbidity and infection, and improved in general the lying-in period of the patient, it merited attention and should be tried in the manner so strongly recommended by its advocates.

With this in view, we chose to study the effect of quinine sulfate on labor and the puerperium on 1,000 patients, at the same time correlating the results with a current and equal number of control cases. The demands of the war interrupted our study after we had obtained complete data on half the number of patients. Although our goal of analyzing 1,000 cases had to be abandoned, it was thought that the observations that had been made up to that time justified a critical survey.

Our series then consisted of 500 cases to whom quinine was given. Of these, 290 were primiparas and 210 multiparas. The control series simultaneously observed also numbered 500 cases, of whom 269 were primiparas and 231 multiparas (Table 1).

TABLE 1.—CASES STUDIED

	Quinine	Control
Primiparas	290	269
Multiparas	210	231
Total	500	500

In order to confine our observations as much as possible to the normal pregnant and parturient woman, we excluded, in both series, patients with contracted or borderline pelves, cardiac disease, diabetes, toxemias of pregnancy, previous cesarean sections, urinary tract infections, anemias, and pelvic tumors.

Method of Drug Administration

Approximately three weeks before the expected date of confinement each patient who was selected to receive the drug was given an envelope containing twenty 1½-grain capsules of quinine sulfate. She was instructed to take one capsule

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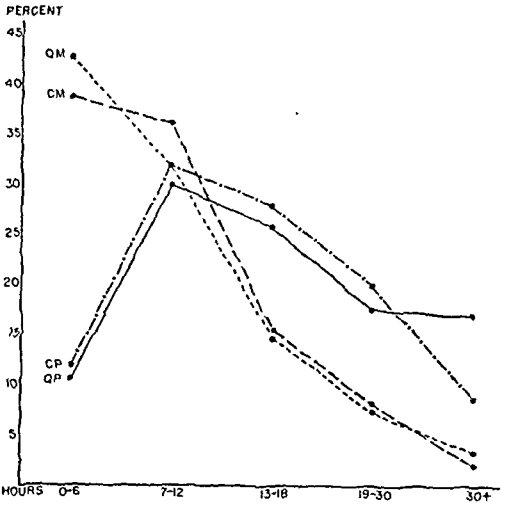


FIG. 1. Relationship of quinine and control series to the duration of labor. *QP* = quinine primiparas, *QM* = quinine multiparas, *CP* = control primiparas, *CM* = control multiparas.

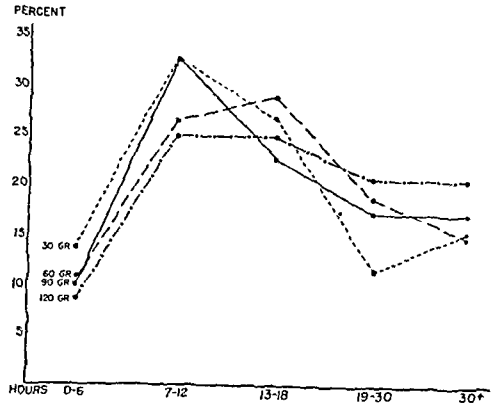


FIG. 2. Relationship of dosage of quinine to duration of labor in primiparas.

three times a day so that the total daily dosage amounted to 4½ grains. This routine essentially represents the one that has been recommended as the most effective. The patient was also instructed to notify us if, at any time during the administration of the drug, she developed any idiosyncrasy such as a rash, intense itching, photophobia, tinnitus, or vertigo. The capsules were dispensed at weekly intervals in order to keep more accurate records of the amounts taken by the patient as well as for the purpose of avoiding waste of the drug. At each weekly visit during the period of medication the patient was carefully questioned regarding any symptom that might warrant cessation of the administration of the drug and was encouraged to give the utmost cooperation.

Duration of Labor

In computing the duration of labor, it is obvious that it primarily depends upon noting the exact time of the onset of labor, a fact which is difficult to obtain without error, inasmuch as there are no definite criteria to guide us. Mitchell and Bradbrooke determined the duration of labor by considering that it began at the time when the patient was compelled to hold on to a chair or any supporting object when she had a pain, or that period of incapacity in which the patient asks for relief because of the severity of the pain. With this as their criterion, the primiparas in their series averaged six hours and the multiparas three hours. They had no control series for comparison. Linton Smith, using the same criterion, reported that the primiparas in his group averaged two hours and ten minutes and the multiparas one hour and fifteen minutes. However, Smith also computed the total duration of labor among his patients from the time the first painful contraction was recognized, and found then that the primiparas averaged ten hours and the multiparas six and one-half hours, which is still a conspicuously shortened average for primiparas and multiparas.

Conforming to our established and generally accepted routine, we recorded the beginning of labor as the time when the patient recognized a uterine contraction as her first painful contraction or her first labor pain. Consequently, without setting up new criteria for the determination of the beginning of labor, we felt that our results would be more uniform and consistent if we followed our standard routine. In our series (Table 2) we found that among the primiparas the average duration of the first stage was seventeen hours and forty-eight minutes, and of the second stage one hour and twenty minutes, making the total average duration of the first and second stages nineteen hours and eight minutes. In contrast, among the control cases the primiparas averaged fourteen hours in the first stage and one hour and twelve minutes in the second stage, totaling fifteen hours and twelve minutes in both stages. Just the opposite of that which we had hoped to confirm was disclosed. The average duration of labor was found to be approximately four hours longer among the primiparas in the quinine series. In attempting to search for an explanation for this discrepancy, it was noted that there were 47 patients in the quinine series who had labors lasting more than thirty hours, as contrasted with twenty-three, or about half as many such cases in the control series. This may well be interpreted as an indication that quinine does not eliminate primary uterine inertia.

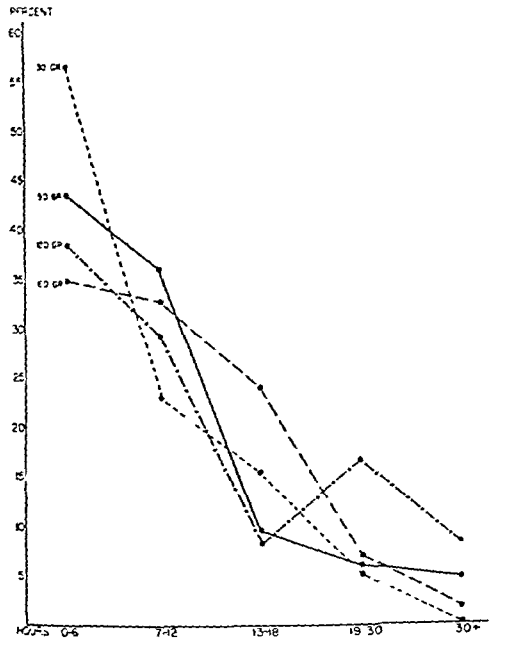


FIG. 3. Relationship of dosage of quinine to duration of labor in multiparas.

Bourne and Burn[8] demonstrated that while quinine increased the frequency of contractions in the human uterus in labor, contractions were not so forceful—an important factor that may be advanced to explain the increased number of prolonged labors in the series of primiparas. As a matter of interest, we found that if the cases of prolonged labor were excluded from each group, the quinine series averaged 13 hours and 57 minutes in the first and second stages, and the control series 13 hours and 8 minutes.

A comparison of the multiparas revealed that those in the drug series had an average duration in the first and second stages of 9 hours and 46 minutes, while those in the control series averaged 9 hours and 18 minutes. This comparison does not show any appreciable difference in the two groups.

TABLE 2.—DURATION OF LABOR

	Quinine	Control
Primiparas		
First stage	17 hrs. 48 min.	14 hrs. 0 min.
Second stage	1 hr. 20 min.	1 hr. 12 min.
First and second stages	19 hrs. 8 min.	15 hrs. 12 min.
First and second stages	Excluding prolonged labor (47 cases) 13 hrs. 57 min.	Excluding prolonged labor (23 cases) 13 hrs. 8 min.
Multiparas		
First stage	9 hrs. 18 min.	8 hrs. 48 min.
Second stage	28 min.	30 min.
First and second stages	9 hrs. 46 min.	9 hrs. 18 min.

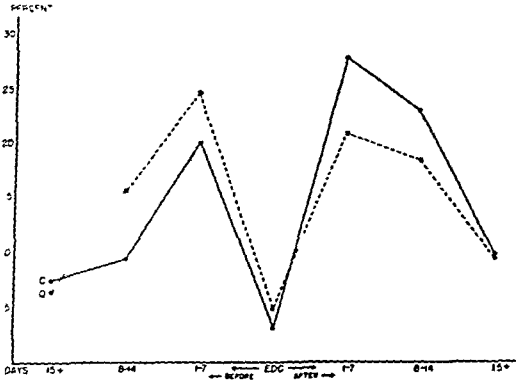


FIG. 4. Relationship of quinine and control series to day of delivery in primiparas. Q = quinine, C = control.

Fig. 1 demonstrates the percentage of cases in each group which delivered in the various designated divisions of the average duration of the first and second stages of labor. In general, one can say that the two groups of curves run essentially parallel to one another, except that the greatest discrepancy appears in the primiparas, where among the quinine series 16.9 per cent (47 cases) had prolonged labors as compared with 8.7 (23 cases) in the control series, a difference of 50 per cent already referred to in the discussion of Table 2.

Relationship of Dosage of Quinine to the Duration of Labor

The amount of quinine that each patient had taken was accurately recorded in grains, and, irrespective of the time of delivery, it was thought important to determine whether the total dosage had any definite effect upon the duration of labor.

For the purpose of convenience, the cases were divided into the following four categories: those that had taken 30± grains, 60± grains, 90± grains, and 120± grains. Actually, the smallest dose recorded was 9 grains, or two days' medication; and the largest dose 150 grains, or 33 days' medication. From the percentage number of cases falling under each of the four categories, one sees in Fig. 2 that the greater percentage of primiparas delivered between the 6-12 hour and the 18-30 hour intervals, irrespective of how much quinine they had had, and in Fig. 3 that most of the multiparas delivered between the 0-6 hour and the 6-12 hour intervals. Both curves approach the total averages noted in Table 2 and finally reveal that the duration of labor is not affected by the number of doses or the amount of quinine the patient gets, a fact already pointed out by Buddee.

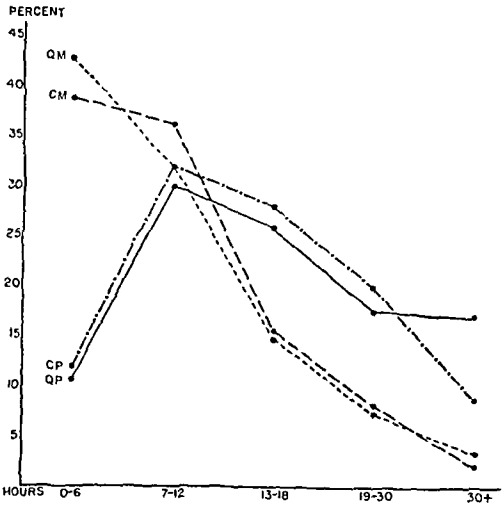


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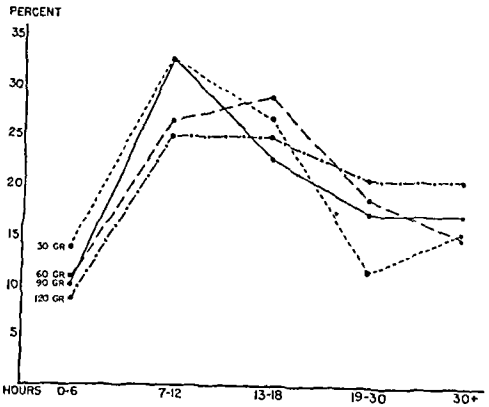


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grains. There was one who complained of pain in the right ear after 32 grains, another of nausea following 60 grains, a third one of a generalized body rash after 60 grains, and one of itching over the entire body following 63 grains of quinine. All of these cases were considered drug reactions inasmuch as with cessation of administration of the drug the symptoms promptly disappeared.

TABLE 4.—IDIOSYNCRASY

Cases	Amount of Drug Received	Symptoms
3	30 gr.	Dizziness and tinnitus
1	60 gr.	Dizziness and tinnitus
1	32 gr.	Pain in right ear
1	60 gr.	Nausea
1	60 gr.	Rash over body
1	63 gr.	Itching over entire body

Total of 8 cases, or 1.6 per cent, demonstrated some idiosyncrasy to quinine

Fetal and Maternal Mortality

A study of Table 5 shows that there were only two instances of fetal death in which the role of quinine might be questioned. They are the two listed as "deadborn, not macerated." An analysis of the clinical histories of these two cases discloses that one was associated with a prolonged labor lasting 32 hours and 35 minutes in which the fetal heartbeat was lost shortly after the development of a contraction ring, On maternal indications and because the cervix was not completely dilated, labor was terminated by a craniotomy. Intrauterine asphyxia following the development of the contraction ring readily explains the cause of fetal death in this case. The other one was also associated with a case of prolonged labor that lasted 66 hours. This patient developed a severe intrapartum infection and shortly before the baby was delivered by low forceps the fetal heartbeat was lost, most probably an instance of intrauterine death caused by the intrapartum infection. The mother in this case also died, of ruptured esophageal varices, one hour after delivery, constituting the only maternal loss in our series.

TABLE 5.—FETAL MORTALITY

	Quinine	Control
Congenital abnormalities	4	3
Intracranial injury	2	0
Asphyxia		
Cord around neck	1	2
Prolapsed cord	1	2
Contraction ring	1	1
Deadborn, not macerated	2	0
Deadborn, macerated	0	1
Total	11 = 2.2%	9 = 1.8%

No premature infants in fetal mortality

The rest of the fetal deaths are self-explanatory and in no case did we feel that quinine was in any way responsible.

Comparison of the incidence of fetal mortality —2.2 per cent in the quinine series and 1.8 per cent in the controls—shows no significant difference.

Blood Loss

In Table 6 it is found that the average blood loss in the quinine series was 161 cc. and in the control group 170 cc., an insignificant difference. Dividing the blood loss in ascending quantitative units of 100 cc., it is noted that the number of cases under each group run relatively parallel. In this clinic a blood loss of 600 cc. or more is considered a postpartum hemorrhage. There were eight such instances in the quinine series and nine in the control series. It is obvious from this table that quinine does not exert any beneficial effect in diminishing the amount of blood loss.

TABLE 6.—BLOOD LOSS

Amount Blood Loss in cc.	Quinine, Average Loss—161 cc. No. of Cases	Control, Average Loss—170 cc. No. of Cases
0–99	153	132
100–199	177	193
200–299	92	82
300–399	38	57
400–499	21	18
500–599	9	8
600+	8	9
Not measured	2	1

Subinvolution

We noted that there were 33 more cases of subinvolution in our control series than in the quinine one. Table 7 demonstrates that 66, or 13.6 per cent, of the patients who received quinine were designated as having uteri that were subinvoluted. There were 99 similar cases or 19.8 per cent in the control group. Even though one must allow for the individual differences in the interpretation of what is considered subinvolution, the variation in the two series is noteworthy.

TABLE 7.—SUBINVOLUTION

Quinine		Control	
No. of Cases	Percentage	No. of Cases	Percentage
66	13.6	99	19.8

Morbidity and Puerperal Infection

By referring to Table 8 one finds that the incidence of puerperal morbidity was 6.2 per cent and of puerperal infection 4.6 per cent in the quinine series, whereas in the control series it was 8.0 per cent and 6.8 per cent, respectively. This represents a reduction in the incidence of puerperal morbidity of 1.8 per cent and of puerperal infection of 2.2 per cent in the quinine series. Even though the antipyretic value as well as the general tonic effect of quinine is generally recog-

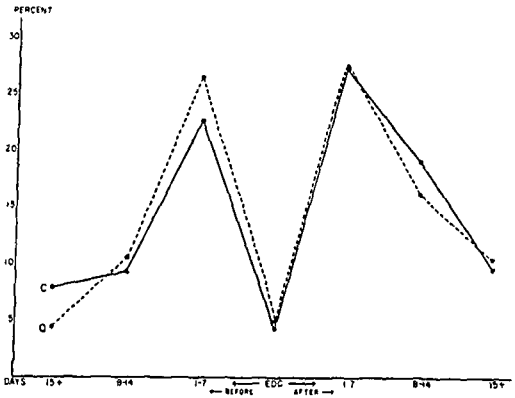


FIG. 5. Relationship of quinine and control series to day of delivery in multiparas. Q = quinine, C = control.

Relationship of Quinine and Control Series to Day of Delivery

Fig. 4 shows that in the primiparas a slightly greater percentage of the quinine series delivered before the expected date of confinement, whereas following that date, the opposite is true—the control cases showed the greater number of deliveries.

Fig. 5 demonstrates that among the multiparas there is a similar though less striking tendency. We do not feel that any importance should be attached to this small difference. However, if a patient does deliver before the expected time, it may be interpreted to mean that quinine, especially among the primiparas, may initiate labor more frequently within the two weeks before the expected day of delivery than among patients who do not take it. An analysis of the number of premature infants born in each series revealed that in the quinine group there were 10 premature babies, none weighing less than 2,050 Gm., whereas in the control series there were none born. It should be pointed out, however, that all those premature infants survived and were discharged above birth weight in good condition.

Relationship to Type of Delivery

If it is claimed that quinine makes labor easier, it should be disclosed in an analysis of the manner in which labor was terminated among our patients.

Table 3 shows that among the primiparas who received quinine only 74.5 per cent delivered spontaneously as compared with 86.2 per cent in the controls, a rather striking difference. More surprising is the incidence of forceps delivery in the two series, low forceps delivery being 10.5 per cent higher in the quinine series, and the application of midforceps 1.6 per cent higher in the control series. It is difficult to propose an adequate explanation for the variation in low forceps delivery among the primiparas. It was not that there were many more occiput posteriors, deep transverse arrests, or cases of fetal distress among the indications for forceps interference in the quinine series. However, it was noted that lack of progress in the second stage pre-eminently appeared as the indication in the 51 patients delivered by low forceps. Again, one may presume that although quinine medication may increase the frequency of pains, it may reduce their power and thus may impede the spontaneous expulsion of the infant at the end of the second stage when the mother generally betrays signs of some exhaustion.

It may be concluded from these observations that quinine not only may fail to eliminate primary inertia, but also secondary inertia.

One cannot find a reason for the greater incidence of breech extractions in the quinine series.

In the multiparas, the figures, except for the incidence of breech extraction, are more equitable. The quinine series showed an incidence of 93.8 per cent of spontaneous deliveries, the controls 96.1 per cent. Forceps delivery was negligible in both series, as one would normally expect in multiparas.

The total percentage of spontaneous deliveries for all cases in the quinine series was 82.6 per cent while in the control series it was 90.8 per cent. Forceps deliveries numbered 57 cases or 11.4 per cent, in contrast to 33 cases or 6.6 per cent in the controls. Breech extractions numbered 26 cases or 5.2 per cent in the quinine group, and among the controls 12 cases or 2.4 per cent. From these figures it would appear that quinine certainly does not render easier the termination of labor.

Idiosyncrasy

There were 8 patients, or 1.6 per cent, in the whole group who demonstrated some of the adverse effects of quinine medication. Table 4 shows that four women complained of dizziness and tinnitus, three of them after they had taken 30 grains of quinine and one after taking 60

TABLE 3.—RELATIONSHIP TO TYPE OF DELIVERY

	Quinine	Control
Primiparas	290	269
Spontaneous	216 = 74.5%	232 = 86.2%
Low forceps	51 = 17.6	19 = 7.1
Mid-forceps	6 = 2.1	10 = 3.7
Breech extraction	15 = 5.2	7 = 2.6
Craniotomy	1 = 0.3	1 = 0.4
Dührssen and spontaneous	1 = 0.3	
Multiparas	210	231
Spontaneous	197 = 93.8%	222 = 96.1%
Low forceps	0 = 0.0	3 = 1.3
Mid-forceps	0 = 0.0	1 = 0.4
Breech extraction	11 = 5.2	5 = 2.2
Cesarean section	1 = 0.5	
Delivered elsewhere	1 = 0.5	
Total spontaneous	413 = 82.6%	454 = 90.8%

There is a widespread difference of opinion as to the effect of quinine in labor in the human subject. The favorable claims made in the English reports have not been substantiated by American observers. Among others, Dodek, in 1932, took records of uterine movements and saw no effect from quinine. The addition to the Gwathmey oil-ether anesthesia was probably useless, but undoubtedly there was a toxic effect on mothers, as demonstrated by tinnitus and other sequelae.

Of course, quinine administration, as discussed by the authors, is concerned with a somewhat different field, in which quinine is employed in a cumulative manner for its tonic and prophylactic effects. Although given in smaller doses during pregnancy, it would appear illogical not to expect that the cumulative effect of the drug might bring on labor prematurely. This seems to be borne out by the authors' figures, nor was any favorable effect observed in other factors in which improvement was sought, such as the length of labor, ease of delivery, blood loss, and uterine involution. The conclusion that quinine is of little value in obstetrics does not appear unreasonable.

All of the foregoing need not detract from the great value of quinine as a specific cure in a particular parasitic disease, for its value as an oxytocic or an alterative has never been satisfactorily demonstrated. It is also evident that the outcome of a labor cannot be predicted on the employment of this drug, or that any reliance can be placed on it to prevent other complications of pregnancy. Although toxic effects were noted in only a small proportion of Dr. Marchetti's patients, possible aftereffects on the babies must be given consideration, especially since isolated instances of such complications have been reported by Gellhorn and others. Probably we had better reserve quinine for its outstanding value in the treatment of malaria, for which at present all supplies of this valuable drug should be dedicated rather than waste it for other doubtful purposes.

Dr. Linton Smith, *Atlanta, Georgia*—Almost ten years ago I was impressed with the fact that my patients who were in the later stage of pregnancy and were treated with quinine for malaria seemed to have easier labors than other women who were not so treated; moreover, the time consumed in labor seemed to be shortened. I investigated the literature and found the reports of the British writers. I began to use quinine in the late weeks of pregnancy and to keep accurate records. Since that time I have made several reports and my enthusiasm has not lessened nor has my confidence decreased.

Recently I have made investigations and have completed experiments which have proved conclusively that quinine does add tone to voluntary and to involuntary muscle fibers. By tone I mean the normal activity or vigor of muscle fibers. I regret that my time does not permit me to explain these experiments and the results. I also found that one part of quinine to ten thousand had a very definite effect on the uterine muscle of the cat and dilutions of one to fifty thousand seemed to be effective. I also was convinced that if muscle fibers were of good tone and were normally active that inversely they relaxed far more satisfactorily. Now let us consider what the mechanism of labor is.

The uterus contracts throughout pregnancy with more or less periodicity, and in many patients shows more irritability in the later stages. The painless contractions of the last weeks of pregnancy force the head into the pelvis and soften the structures there, and the descending portion of the fetus seems to burrow its way. Labor begins very gradually; we say that labor actually begins when the contractions become sensible to the patient. Therefore, in the first stage of labor the uterus does all of the work with gradually increasing force, and develops the lower uterine segment; the hydrostatic bag of water is formed, the cervix is effaced, and the os is dilated. In the second stage of labor the work is largely done by the voluntary abdominal muscles but the involuntary uterine muscle still is effective. The contractions may be too weak or too strong, too short or too long, too seldom or too frequent, or irregular, all of which promote an abnormal labor. Weak contractions or inertia uteri may become evident, by infrequent contractions, or too short contractions, and often by a combination of all three. These cause an unduly prolonged first stage of labor and may prolong the second stage, because the presenting part is not forced against the perineum strongly enough to cause vigorous muscle contractions. Anything that will cause consistent normal contractions of the uterus will also assist in softening and dilating the soft tissues of the pelvis and thereby shorten labor and substantially lessen the suffering of the mother as well as lessen the possibility of mortality and morbidity of the fetus.

Quinine administered in small doses for three weeks before the onset of labor will act as a true tonic to voluntary and involuntary muscles, thereby increasing the basic tone of the muscles involved, and contractions which are excited by other endogenous means will be reinforced. The increased tone of the muscles will hasten the development of the lower uterine segment and more positively develop the hydrostatic bag of water, which will earlier efface the cervix and dilate the os. The very tone which is imparted to the uterine muscles seems to act inversely on the soft structures of the pelvis so that they dilate more easily and more rapidly.

The general health of my patients has been improved by the small doses of quinine. A large number of them say, voluntarily, that they feel definitely stronger, their appetite is improved, and indigestion and heartburn, of which many patients complain in the late stages of pregnancy, are often entirely or greatly relieved, which I think is caused by the increased flow of digestive juices.

In February, 1942, I reported 482 cases in addition to the 60 cases which I had reported in 1936. I am now adding to the cases reported above 158 others, which gives a total of 700. I will give a brief statement of the time consumed in labor, blood loss, subinvolution, infections, fetal mortality, maternal mortality, morbidity, and idiosyncrasy.

nized, we do not feel that it should be recommended as a specific agent to combat puerperal morbidity and infection. The advances that have been made in dietetics and vitamin therapy and their application to the improvement of the general condition of the obstetric patient, as well as the tested value and judicious use of the sulfa drugs in treating some of the febrile puerperal complications, overshadow the beneficial effects that may be attributed to the use of quinine.

TABLE 8.—PUERPERAL MORBIDITY AND INFECTION

	Quinine, 500 Cases		Control, 500 Cases	
	No. of Cases	Percentage	No. of Cases	Percentage
Puerperal morbidity	31	6.2	40	8.0
Puerperal infection	23	4.6	34	6.8

Any discussion of the value of the use of quinine in the induction of labor was purposely omitted in this survey. However it is known that quinine per se does not induce labor. Furthermore, experiments have shown that the use of castor oil and pituitrin in the medical induction of labor is as effective without quinine as it is with it. This fact, together with the observations that have been made in this survey, leads us to conclude that in general the use of quinine in obstetrics may prove to be of little value.

Summary

1. Five hundred cases were selected for study of the effect of the antepartum administration of small doses of quinine on labor and the puerperium. A similar number of control cases were observed to evaluate the results.

2. It was found that quinine did not shorten the duration of labor. On the contrary, among primiparas it was lengthened. In the quinine series, the average duration of the first and second stages among the primiparas was 19 hours and 8 minutes, among the multiparas 9 hours and 46 minutes; in the control series, it was 15 hours and 12 minutes for the primiparas and 9 hours and 18 minutes for the multiparas.

3. No relationship was noted between the number of doses or the amount of quinine administered and the duration of labor.

4. In the quinine series, the percentage of cases that delivered before the expected day of delivery was slightly higher than in the control series. No importance is attached to this small difference.

5. Judging from the manner in which labor was terminated in these series, it appears that quinine does not make labor easier. In the quinine series, labor was terminated spontaneously in 82.6 per cent, by forceps application in 11.4 per cent, and by breech extraction in 5.2 per cent of the cases; and in the control series it was terminated in 90.8 per cent spontaneously, in 6.6 per cent by forceps application, and in 2.4 per cent by breech extraction.

6. Eight or 1.6 per cent of the patients to whom quinine was administered manifested some idiosyncrasy to it.

7. No appreciable or directly adverse effect of quinine medication was noted on fetal mortality.

8. No significant variation in the amount of blood loss during delivery was observed in the two series. The average blood loss in the quinine group was 161 cc., in the controls 170 cc.

9. Subinvolution was recorded more frequently in the control series than in the quinine series. It was found in 19.8 per cent of the control cases and in 13.6 per cent of the quinine cases.

10. The incidence of puerperal morbidity was 6.2 per cent and of puerperal infection 4.6 per cent in the quinine series, and 8.0 per cent and 6.8 per cent, respectively, in the control series. Although morbidity was reduced by 1.8 per cent and infection by 2.2 per cent in the quinine series, it is felt that the drug cannot be recommended as a specific agent to combat febrile puerperal complications.

11. Finally, from the observations made in this survey and the fact that quinine does not seem to influence the success of the medical induction of labor, it is concluded that generally the use of quinine in obstetrics may prove to be of little value.

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Discussion

Dr. George W. Kosmak, New York City—Dr Marchetti's presentation constitutes a very valuable contribution to our knowledge of a procedure which always impressed me as based largely on empiricism and never satisfactorily substantiated by pharmacologic research. However, most of our obstetric textbooks regard quinine as an oxytocic and recommend its employment as a stimulant to a sluggish uterus or for the induction of labor. Questioning of a leading pharmacologist has elicited from him the statement that while in animal experiments on the intact uterus or on isolated strips weak solutions of quinine may increase contractions, these may stop with stronger concentrations. There is no constancy comparable with that of pituitary, ergonovine, or adrenalin action.

treatment seems to be defeated in many cases. Other salts of quinine may be just as useful, but I think that the hydrochloric acid in the salt used by me is of great help.

Dr. Marchetti had his patients take quinine sulfate in doses of 1½ grains, three times a day, and I have used the quinine dihydrochloride. The quinine sulfate contains only 73.5 per cent of the alkaloid, while the quinine dihydrochloirde contains 81.6 per cent of alkaloids. Quinine dihydrochloride therefore contains 8.1 per cent more alkaloid than the sulfate; this would give my patients considerably more of the alkaloid than Dr. Marchetti's patients received. Could not this difference in amount of drug given account for his lack of better results?

All of my patients were personal patients, as were those of my associates, and I am sure that all of the ones reported received *all* of the drug ordered for them. Could it be that Dr. Marchetti, who does a tremendous volume of work, did not have the close personal contacts with his patients with the good control that such relations bring, resulting in his patients not taking all of the drug given to them? If this is true it could account for Dr. Marchetti's failure to obtain results favorably comparable with my cases.

Infant mortalities have been reported from mothers having been given quinine, but in every case I have investigated large doses had been ingested, usually in a very short time and often in an effort to induce labor, for which it is worthless.

Partial or permanent deafness in infants has been caused by several drugs being taken by mothers during pregnancy. When quinine was thought to be the cause, it was found that very large doses had been taken, usually within a very short time. I have examined a large number of children who were born to mothers who were given quinine as suggested above. Some of them are now almost 10 years old and I have not found any case in which I could possibly blame the quinine. In almost all cases in which there was impairment of hearing, other causes could be definitely found. It is possible that small doses might injure both mother and fetus if an idiosyncrasy existed, but it is not difficult to detect symptoms caused by the drug if undue sensitiveness exists.

ARTIFICIAL LIMB NOT A HANDICAP

One of the largest of the three hundred artificial limb companies in the United States, which makes a thousand artificial limbs a month, has organized a baseball team of customers who have lost either an arm or a leg and yet play regular benefit games in and around New York, according to J P McEvoy, who points out that this year's schedule was somewhat curtailed because so many members are employed in defense industries that they have only a limited time for practice.

"It is not generally known," he states, "but Great Britain's air raid victims who have lost limbs are provided with new artificial ones free of charge by the Ministry of Pensions—and nearly always they go back to the same work they left. In the arm training school at Roehampton, patients get an intensive course in carpentry, printing, sign writing, decorating, gardening. Women are taught to knit and do housework with their artificial arms and are trained for factory work.

"The hand is detachable at the wrist and into the socket can go whatever tool is needed for the job in question. An engineering foreman perfected an artificial right hand with which he can select a cigarette from the package, take a match from a box, strike it and light up. This done, he can take off the hook and punch a 60 pound wooden block with his steel stump. . . . ."

Accounts such as this of those who have been able again to take their place in the ordinary affairs of life, or, better still, actual demonstration by them of their unimpaired ability to work and to play, can do much for the morale of those who have recently suffered amputation, Mr. McEvoy says.

"WAR NERVES" STUDY

Sufferers from "war nerves" are being interviewed by students of the Long Island College of Medicine as a new phase of the training in military medicine which is preparing them for service with the armed forces, according to an announcement by the college.

Dr. Howard W. Potter, clinical professor of neurology and psychiatry at the college, who is medical supervisor of the New York area for the War Shipping Administration and the United Seamen's Service, Inc., has arranged for the students to learn something about the nature and treatment of "war nerves" among British and American merchant seamen who have suffered torpedoing and exposure on rafts or in open boats. Through these interviews, supervised by a faculty member, the students learn at first hand about one of the most important problems of psychosomatic medicine. Similar problems will be encountered when they have completed their training as doctors and are assigned to active duty with the Army and Navy.—*What Scientists Are Doing, New York Herald Tribune*

My results in the larger number of cases were not quite so good as they were in the original 60 cases, which were the first ones treated by me. They were probably more carefully cared for during pregnancy and were also more carefully selected. The later patients were taken as they came, without any effort at selection.

There were 458 primiparas and 242 multiparas. The total duration of labor in the primiparas averaged 12 hours and 23 minutes; and in the multiparas it averaged 8 hours and 5 minutes. The total duration of labor in these cases is considered as the time measured from the first recognized pain until the delivery of the baby. The first stage of labor took place quite painlessly. In many cases when the first obstetric examination was made I found almost complete dilation. I attribute this easy and relatively painless first stage to the better tone of the involuntary muscles, which caused firmer and more vigorous uterine contractions which, in turn, were followed by more complete relaxation of the muscles and other soft parts of the pelvis.

The first stage of labor is considered as the time from the first recognized pain until the time when the pain is so severe that the patient holds to something or asks that something be done for her. This stage consumed 8 hours and 7 minutes in the primiparas and 4 hours and 21 minutes in the multiparas. The second stage of labor as measured by pain is considered to be the time from which the patient complains of pain and asks for something to relieve her, until delivery. This painful stage in the primiparas consumed 4 hours and 16 minutes and in the multiparas 3 hours and 44 minutes. All of these results are considerably better than the average time of labor and I can attribute them to no cause other than the use of quinine.

Accurate figures as to blood loss are not available, for I did not begin to measure this until after I had used this method for several years; but it seemed to me—and my associates agreed—that less blood was lost in quininized patients than in ones who were not so treated.

There were 61 cases of subinvolution, or 8.7 per cent, and these included all degrees, in the entire number of cases far fewer than the usual number of subinvolutions. Subinvolution cannot be measured so accurately as can infection and other complications, for we must allow for the differences in opinion as to what constitutes this condition. Nevertheless, this is certainly better than the average. Subinvolution is considerably influenced by infection, and the low rate of infection influenced this markedly.

There were 21 cases of infection in the entire series, but better methods of treating women during pregnancy, with the added recognition of the importance of diet and a sufficient vitamin intake, and the much larger number who were delivered in a hospital, influenced this to a great degree. The fact that vaginal examinations are never done unless for some specific purpose was an influential factor, but I consider that the quinine which was administered before the onset of labor acted as a general tonic and thereby increased the natural resistance of the patient. I also consider that quinine does act specifically to prevent puerperal infection.

One who has practiced in a malarial section soon learns that patients who are given quinine are more resistant to many types of infection. In accident cases and in surgical operations of many kinds I long ago observed that quininized individuals certainly have more resistance than ones not so treated. I do not claim that quinine in the blood will have the bacteriostatic effect that the sulfonamides do, and I do not claim that it is certainly bactericidal, but results will speak for themselves. You all know that in vitro and in vivo effects vary largely, and while a quinine solution in a test tube will be very feebly, if at all, bactericidal, it may act quite differently in the blood stream of a living individual. One who has practiced medicine for a long time in a malarial section learns to place greater confidence in quinine than others not so familiar with its usefulness. Exactly 3 per cent of infections in 700 patients who had been delivered—and this includes many cases of poor white and colored patients, who are more susceptible to infection than better cared for and better nourished ones—speaks well for this drug.

The mortality rate was not significant, for there were only two deaths, one of which was accidental and entirely independent of pregnancy, and the other from postpartum hemorrhage. Slightly less than 0.3 of 1 per cent is a low death rate. It may be that the tonic effect of the quinine for twenty-one days before the onset of labor had an effect which was favorable in preventing complications that increase mortality.

Idiosyncrasy was so infrequent that it also was considered of little importance. The small doses which I will give cause mild symptoms if there is undue sensitivity to the drug. It should be stopped promptly if there is a suggestion of such effect. There were 16 patients, or 2.3 per cent, who were sensitive to the drug, or it was thought that they were, and it was immediately discontinued. One patient had a rash over the entire body after taking one dose of $1^1/_2$ grains of quinine dihydrochloride; nausea was complained of by 3 patients after taking five, eight, and eleven capsules containing $1^1/_2$ grains of the drug each; one had an attack of what seemed to be "hay fever" after taking three doses, or $5^1/_2$ grains; all of the other 11 patients had mild symptoms which were only suggestive but the drug was discontinued in all. I instruct all patients as to the usual symptoms of idiosyncrasy and they are told to discontinue the drug if any of the symptoms develop, or if there is suspicion of any unfavorable reaction.

I have used quinine dihydrochloride, 90 grains in sixty No. 5 gelatin capsules, prescribing one just before each regular meal, beginning three weeks before the expected onset of labor, and continued further if labor does not come on at the expected time. This simplified treatment should be rigidly adhered to if the best results are to be expected, for if less infrequent doses are given the concentration of quinine in the blood will vary.

If larger doses are used, the very purpose of this

of continued plasma loss from the blood channels, hypoproteinemia, hyperventilation, anoxia, acidosis, and eventually respiratory and circulatory failure.

Toxemia.—There is much debate concerning the nature and course of the toxemia in patients with severe burns. The existence of a "burn toxin" has been advocated by many authors and questioned by as many more. However, there is complete agreement on two points: (1) almost every patient shows a toxic appearance at some time during the course of the illness, and (2) there is an imposing array of evidence showing anatomic and functional changes in parenchymal organs far removed from the site of the burns.[3]

Infection.—The burned area when seen by the surgeon is invariably a dirty wound. Adherent to it may be parts of dirty clothing, and it is often covered with some fatty substance as a result of misguided first aid treatment. It is an ideal medium for the growth of bacteria. Infection in burns must be considered in relation to toxemia. Septic toxemia can be just as serious to the patient as the acute toxemia occurring immediately after the burn. Shock and acute toxemia in a burned patient may be successfully combated only to have the patient succumb later to an overwhelming systemic septic toxemia as a result of prolonged infection of the burn.

Treatment of Local and Systemic Changes

Now let us consider how these local and systemic changes are treated today. Obviously, the systemic, or constitutional, effects of a burn, and the burn itself, are treated concomitantly.

Shock.—First, attention must, of course, be given to the condition of shock. Here the treatment is the same as that for shock from other causes—namely, liberal dosage of morphine, warmth, and plasma intravenously. It is important to remember that the hemoconcentration resulting from the loss of fluid out of the capillaries and from the burned surfaces cannot be adequately treated by saline infusions alone. Intravenous administration of saline is beneficial in limited amounts only. Excessive amounts of saline produce a massive edema and further reduce the level of plasma protein. Plasma transfusions are indicated and not blood transfusions because the need is for plasma proteins and not erythrocytes. After the capillaries recover their normal function, the further administration of plasma will restore the fluid balance to a normal state. The extra plasma protein given as a plasma transfusion draws out the edema fluid from the tissues and restores the plasma volume to normal.[3] The requirement for plasma varies with each case. The less severe cases respond to plasma transfusions totaling 500 cc. of plasma. In very severe cases a continuous transfusion requiring 2 or 3 liters of plasma may be necessary. The following is a workable rule for plasma requirements except in cases of severe anemia and polycythemia:

Enough plasma should be given to keep the hematocrit value between 50 and 55 per cent cells, and the plasma protein level about 6 Gm. per cent until the capillaries return to a normal state of permeability. Capillaries return to a state of normal permeabiliby about forty hours after a burn. At that time enough plasma is given to restore the plasma volume to normal. It is well to remember that plasma may be given rapidly, 500 cc. in five minutes if necessary, by means of a syringe instead of by the drop method. The Navy, in the present world conflict, has a practical rule for the twenty-four hour administration of plasma—namely: (1) 10 per cent of the body surface burned, 1,000 cc.; 20 per cent of the body surface burned, 2,000 cc., etc.; (2) always give in divided doses; (3) if hematocrit determination can be done, give 100 cc. of plasma for each point above 50 per cent cells.[4]

Robert Elman, in a recent study of 369 burn cases treated in the St. Louis City Hospital, found that following the use of plasma the mortality rate dropped from 25 per cent in 1925 to 11 per cent in 1941.[5]

Another method that is being used with excellent results in controlling plasma loss at the site of burns is that of pressure. A firm pressure bandage is applied to the burned area. As Allen Whipple has pointed out,[6] "The most important early general complication (of burns) is plasma volume loss as a result of plasma leakage into the interstitial spaces. This can be largely prevented by firm pressure bandaging and controlled by plasma transfusion."

Suprarenal cortical hormone—e.g., eschatin—has been used for the treatment of burn shock. However, recent reports on adrenal cortical extract by the National Research Council state that it has no discernible effect on traumatic or burn shock in man.

Careful control of the fluid shift by plasma transfusions modifies the course of the toxemia. Maintenance of a good circulation reduces tissue anoxia and facilitates kidney function. Too much stress cannot be placed upon the importance of a normal, or better than normal, output of urine.

If there is any question of lung involvement, oxygen inhalation should be started at once. A Boothby mask is preferable and a concentration of at least 60 per cent oxygen should be maintained.

Infection.—One can readily understand how

THE PRESENT-DAY TREATMENT OF BURNS

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EACH year in the United States approximately 70,000 lives are lost as a result of burns. Forty-five per cent of these deaths are in children under 6 years of age. The beginning of the tannic acid treatment of burns by Davidson in 1925 marked the opening of a new drive on the part of many clinicians to lower this mortality rate. Since then, the pathology of burns has been more carefully studied and renewed efforts have been made to treat burns more rationally.

In order to appreciate fully the treatment of burns, some understanding must be had of the pathology that follows such trauma. For the purpose of this discussion the pathologic sequelae following the injury might arbitrarily be described under two headings: (1) the local changes at the site of the burn, and (2) the systemic, or constitutional, changes.

Local Changes

Let us consider the changes occurring at the site of the lesion. It is customary to classify burns into three grades, according to the depth of the burn—i.e., first-degree burns, involving merely the superficial layer of skin, for example, sunburn; second-degree burns, in which there is bleb formation; and third-degree burns, in which the entire thickness of the skin and possibly underlying structures are involved. This classification is so commonly used that we are likely to lose sight of the more important standard of measurement, the *extent* of the burned area.

It has been authoritatively stated[1] that first-degree burns may be fatal if two-thirds of the body surface is involved; that all second degree burns involving one-third of the body surface in adults are fatal; and that a second-degree burn involving one-seventh of the body surface may prove fatal. Children are more susceptible to the influence of burns. A burn affecting one-tenth of the body surface in a child should be considered serious.

Dr. W. K. Jennings, of the Evanston Hospital, outlines a gage for measuring body surface as follows:

1. The lower extremities, including the buttocks, comprise 38 per cent of the body surface.
2. The trunk, including the neck, 38 per cent.
3. The upper extremities, 18 per cent.
4. The head, 6 per cent.

The hand is approximately 1/4 of an upper extremity, and the arm, 3/4.

The foot is 1/6 of a lower extremity, the leg, 1/3, and the thigh, 1/2.

It is interesting to note that the majority of deaths from burns occur during either the first few hours or after the third day. Early death is a result of shock. Several theories have been advanced to explain the deaths occurring later —i.e., after the period of primary shock. The theories explaining such fatalities that are most widely held today are: (1) absorption of toxins from burned areas; (2) loss of body fluids—i.e., serum—and the resulting increased concentration of the blood, and (3) infection in the burned areas.

Systemic Changes

These theories bring us to a description of the systemic, or constitutional, changes that accompany burns. These constitutional changes, enumerated in their order of occurrence are: (1) shock, (2) toxemia, and (3) local infection with its systemic effects.

Shock.—Practically every patient with a severe burn suffers some degree of shock. Shock is the circulatory failure which begins within a few minutes after the onset of the burn and may persist for two or three days. It is caused by a shift of fluid—that is, a leakage of plasma from the vascular channels into the tissue spaces. Much fluid is also rapidly lost externally from the burned surface. This loss of fluid quickly results in a marked concentration of the red blood cells, so much so that shortly after the occurrence of severe burns it is common to find patients with hemoglobin readings up to 130 per cent or even higher. Drs. John Keeley and John Gibson, of Boston, recently reported their findings in an experimental study on this subject.[2] They found a decrease in plasma volume amounting in some instances to as much as 36.6 per cent immediately after the burns, with a continued decrease at a lesser rate during the remainder of the experiment. They also found a marked increase in the total volume of circulating red blood cells to as much as 59.5 per cent and a decrease in the total blood volume to 20.6 per cent. Furthermore, they observed a concentration of serum protein within normal limits at first and then gradually declining, indicating a decided loss of protein from the blood stream. The concentration of sodium chloride in blood serum varied little.

This hemoconcentration, that results from loss of blood plasma, interferes with the speed of blood flow. This, in turn, sets up a vicious cycle

Read at a joint meeting of the Nassau Surgical Society and the Nassau County Medical Society, March 31, 1942, Garden City, Long Island.

After treatment of shock had been instituted, the burned areas were immediately sprayed from an atomizer with 3 per cent sulfadiazine in 8 per cent triethanolamine. This treatment was found to allay pain so readily that frequently a narcotic could be dispensed with. Scrupulous care and aseptic technic were exercised in the thorough débridement of all blebs and loose tissue after the initial spraying. The areas were sprayed every hour during the first day, every two hours the second day, every three hours the third day and every four hours the fourth day. By this time a thin, translucent eschar had formed and further spraying was not essential. The eschar is sufficiently strong, yet pliable and elastic enough to prevent breaking, so that active exercise and partial weight bearing are encouraged to prevent contractures. After about ten days the edges of the eschar begin to loosen and to separate from the intact epithelium beneath it. In third degree burns the eschar is allowed to remain in place for at least two weeks. In patients with second degree burns not hospitalized the same débridement is employed as in more extensive burns; the areas are sprayed several times and covered with either sterile vaseline or ointment consisting of 5 per cent sulfadiazine and 8 per cent triethanolamine in a stearin base. No eschar forms unless the burned area is exposed, but healing proceeds satisfactorily in these cases.

The sulfadiazine solution has a pH of about 8.7. It does not stain; it is almost odorless; it does not injure the skin, mucous membranes, or granulating surfaces, and can be used in and around the eyes with impunity. Sulfadiazine can be detected in the blood within several hours after being sprayed on a burned area, but when the eschar has been formed the blood level of sulfadiazine rapidly falls even though the spraying is continued. Also, it is nontoxic.

This method of treating burns is perhaps the newest one. It may well supplant the older methods. The results obtained with its use on 115 burn cases at Johns Hopkins Hospital have been so gratifying that this method is now used exclusively in that institution in the treatment of burns. It is to be noted that no anesthesia is administered when the burned area is cleansed.

This method was used in a few cases at Pearl Harbor after the raid on December 7, 1941. The results obtained were quite satisfactory. An objection to this method was the time and individual attention required, a matter to be considered in the handling of a large number of burn cases.

First degree burns are treated quite successfully by many physicians with the use of a preparation called amertan. This consists of 5 per cent tannic acid plus 1:5,000 merthiolate in a jelly base. Success in the treatment of such burns has also been had with the use of codliver oil ointment.

Where severe burns involve the extremities, proper and adequate splints must be applied in order to prevent or to keep to a minimum contractures of the joints.

Just a few words need be said about skin grafting. This should be done as soon as possible —i. e., when infection has cleared up and the surface is otherwise ready for such grafting. Early skin grafting is indicated to cover with epithelium as much of the burned surface as possible.

Summary

A burn is an open wound that must be treated in as careful and as aseptic a manner, using strict operating room technic, as any other open wound. Shock must first be combated. Loss of plasma through capillaries, with the concomitant hemoconcentration and loss of plasma proteins, must be treated with the judicious administration intravenously of plasma and of normal saline. The local treatment of the burn, after it has been rendered as nearly sterile as possible, has for its main objects the sealing of the surface capillaries to prevent the additional loss of fluid and preventing contamination of the wound. Various local applications of chemicals have been successfully used to attain these ends. Finally, it is well to remember that a severe burn is a triple threat to life. It may kill by producing shock; it may kill by damaging the liver and other internal organs; and it may kill by establishing a portal of entry for bacteria, which portal may remain open for weeks.

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The Medical Society of New Jersey is raising a research fund through contributions of War Bonds by its members. Initiated by President Elias J. Marsh, the program is now well under way with a number of subscriptions of $18.75 each received from physicians who appreciate the opportunity to combine patriotism with interest in medical progress.

easily infection can occur in a burn. Such infection alone may be severe enough to cause the eventual death of the patient. A burned area of the body is in reality a large open wound. Its treatment should be carried out under just as rigid aseptic technic as the treatment of a compound fracture or any other wound in the body is. It should be carefully cleansed, débrided, and constantly kept as sterile as possible. It should be covered promptly to prevent contamination, with a nonirritant protective coat and one that prevents the loss of body fluid from the burned area. This brings us to the treatment of the burn itself.

Many methods for such treatment have been devised, and many more are in the process of being devised. Each one seeks to overcome the inherent defects in the preceding methods. All have as their objects the prevention of loss of body fluid from the burn, and the prevention of infection in the burn.

Perhaps the most commonly known and most widely used treatment today is the so-called tannic acid method, first described by Davidson in 1925. Unfortunately, part of his treatment —that consisting of an aseptic cleansing of the wound—is often forgotten, and the method is simply thought of as one advocating the use of tannic acid. With Davidson's technic, the burn is thoroughly and carefully débrided after the initial shock has passed. No anesthetic is used.

The burn is cleansed with green soap and water, the blebs excised with sterile instruments, and a 5 per cent aqueous solution sprayed on the burn every fifteen minutes until a dark colored coagulation is obtained. A thick coagulum is not desirable. The patient is then placed on a sterile sheet, and a cradle is put over the body with enough electric light bulbs under the cradle to maintain a temperature of 90 F. The coagulum is allowed to remain in place for about three weeks, or until it becomes loose or its edges curl up as healing progresses. When this happens, or at the end of the three-week period, it is cut away. If serum collects underneath the crust, or should infection cause its loosening, the coagulum is removed sufficiently to allow for drainage or subsequent treatment.

Before adequate treatment of the burn can be instituted, any grease or oil that may have been previously placed on the wound must be removed with ether or benzine.

The tannic acid method should not be used in burn cases several hours old because of the presence of infection.

The rationale of this treatment is that the tannic acid precipitates the broken-down tissue proteins to form a coagulum, which covers the wound, and closes off the capillary beds, thus preventing the loss of body fluids.

There are several objections to this form of treatment. One is that several hours elapse before the coagulum forms, thus allowing much fluid to escape. Another is the frequency with which infection occurs in the wound, beneath or at the edges of the coagulum.

In 1935, Bettman introduced the tannic acid-silver nitrate method. This is essentially the same technic as that introduced by Davidson, the difference being that immediately after the single spraying with tannic acid a solution of 10 per cent silver nitrate is applied with cotton pledgets. Within a few minutes, this causes the formation of a flexible crust, a gain in time which is extremely valuable.

In 1929, Aldrich found that burns treated with the tannic acid method frequently showed marked infection. In order to overcome this complication, Aldrich introduced the compound aniline dye treatment. The chemicals used, known as the "Aldrich Dye Mixture," consist of gentian violet, 3 parts by weight; brilliant green, 2 parts by weight; and neutral acriflavin, 1 part by weight. Two Gm. of this mixture are dissolved in 100 cc. of water and used in the form of a spray. The wound is not so carefully débrided as it is with the tannic acid technic. The patient is placed under a heat cradle and sprayed every hour by means of an atomizer. An eschar develops in about eight hours. If infection develops, the softened areas are excised and fresh dye applied.

The big advantage of this technic is that the aniline dyes in this mixture are markedly antiseptic to the bacteria that usually invade burns. It is used by many physicians, with good results.

Gentian violet alone is used in the same manner on burns, but with probably not quite so good results.

In 1937, Branch introduced the methyl rosaniline-silver nitrate treatment of burns. He applied 10 per cent solution of silver nitrate, which acted on the proteins of the burned area to form immediately a milky white coagulum. The methyl rosaniline is then sprayed on in 1 per cent solution five times at fifteen-minute intervals. If any coagulum is present at the end of two weeks it is soaked off in a warm bicarbonate solution bath.[7] This method has also given excellent results.

In August, 1941, the *Bulletin* of Johns Hopkins Hospital published an article by K. L. Pickrell describing the use of the new chemotherapeutic agents in the treatment of burns.[8] At the Johns Hopkins Hospital a series of burned patients were treated in the following manner:

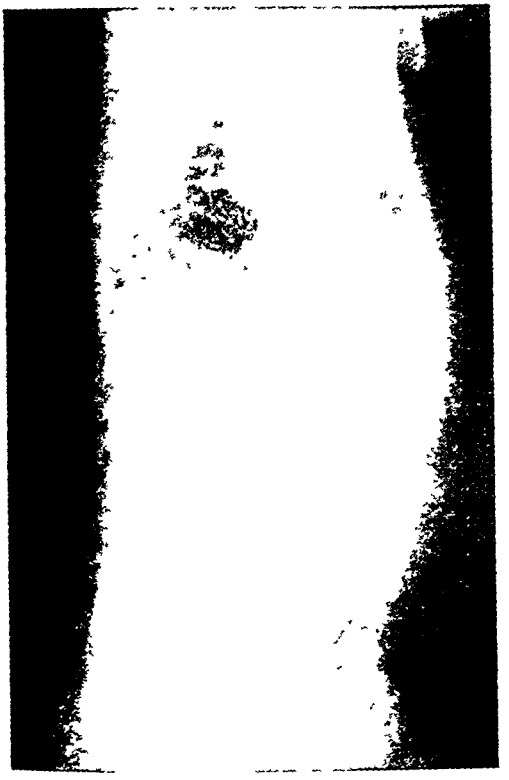


FIG. 1



FIG. 2

to live when simple, practical, instrumental procedure to remove the obstruction is employed. Every active urologist has encountered such cases. We strongly urge that these conditions be considered common incidences, perhaps not much more infrequent than hypospadius or epispadius.

The clinical picture of these conditions can best be appreciated by recounting a number of interesting cases with their unusual clinical features, and accompanied necropsy studies. Two of these cases were congenital valves of the male posterior urethra. To the urologist this is known as the most common congenital infravesical obstruction in children. Langenbeck[3] is accredited with their original description one hundred and thirty years ago, and Young in 1913 was the first to treat the condition surgically Young[4] had 21 cases some years ago; Lowsley and Kerwin[5] reported 4 cases in 1934. Campbell had 63 cases in his *Pediatric Urology*. Urologists since then have noted others, and undoubtedly many were recognized that were never reported.

These posterior urethral valves appear as deep mucosal folds or redundancies, usually attached to the verumontanum. When distended by the retarded fluid stream, they may balloon into cusps. Occasionally they are partial or complete diaphragms. The destructive and obstructive uropathic changes in the upper urinary tract common to all infravesical obstructions, are bilateral, and in the extreme terminal stages the renal parenchyma is reduced to a thin shell. The clinical picture is that of urethral blockage, renal insufficiency, uremia, or urosepsis.

The treatment is directed primarily toward the restoration and preservation of renal function and control of infection. Correction of the obstruction by instrumental or open surgery will save life unless it is performed too late. Too many of these cases are detected only in their terminal stages.

The following two cases are reported in order to re-emphasize and crystallize the clinical picture of congenital urethral valves in the mind of the reader.

Case 2.—A case of congenital valvular obstruction: In 1933, we were asked to see a boy 13 years of age, who appeared to be of no more than 8 or 9 years of age. He was propped up in bed because of embarrassed respiration. At the age of 7, the patient had presented symptoms of respiratory disease and was treated for asthma. From that time on his abdomen slowly increased in size up to the time of admission. The reason that the opinion of urologists was desired on an apparent cardiac case with all the signs of cardiac embarrassment was

CONGENITAL AND ACQUIRED OBSTRUCTIONS AT THE VESICAL NECK IN CHILDREN

J. Sydney Ritter, M.D., and Samuel E. Kramer, M D., New York City

MEDICAL literature is rich with case reports of obstructive lesions of the urinary tract in infants and children. Bugby, Campbell, Butterfield, and Beer have aided materially in emphasizing the need for careful urologic investigation of the young whenever symptoms referable to the urinary tract present themselves.

With the introduction of the McCarthy child's cystoscope further studies of the male urethra were made possible. Heretofore, many lesions were recognized only at the postmortem table. With the introduction of the child's cystoscopes of Beer, Butterfield, and McCarthy, we have been able to study the lower urinary tract clinically. In recent years, Campbell has probably contributed more in this field than any other single individual.

We will present a few of the common obstructive lesions at the vesical neck and add two pathologic entities which, as far as can be determined from a careful search through the literature, have rarely if ever, appeared.

Malignant neoplasms of the juxtavesical portion of the urethra in children usually have been reported as sarcomata of the prostate. All reports that we have found have been in males and have been reported as arising in the prostate. In many of the reported cases the growth was so extensive that it was quite impossible to determine whether the exact site of origin was prostatic, periprostatic, perıurethral, or even retrovesical. The reports of 91 cases of sarcoma of the lower urinary tract collected by Campbell[1] up to 1934 include so-called sarcomata of the prostate. The predominant incidence in male children indicates an origin in the prostate. The sarcomata reported by Campbell, Kaufman,[2] and Socin were histologically myosarcoma, fibromyoma, rhabdosarcoma, round-cell sarcoma, angiosarcoma, and lymphosarcoma, indicating that the origins may have been any of the vesical or subvesical tissues in the male, within or around the prostate.

The following case is reported because it is a subvesical sarcoma in a female, termed by the pathologist a "perıurethral sarcoma" Undoubtedly it corresponds to many subvesical sarcomata in the male which have been called sarcoma of the prostate To date, none has been reported in the female.

It was through the courtesy of Major Abraham Tow that we were privileged to study the following case:

Case Reports

Case 1.—S. R , a white female infant, 5½ months old, well nourished, was admitted to the New York Polyclinic Hospital. A general physical examination was negative. On palpation a mass was noted in the suprapubic area which extended downward behind the symphysis pubis Rectal palpation revealed a hard, firm mass about the size of a walnut, about 1 centimeter internal to the anal sphincter and in the region of the urethra. By inserting a small catheter into the vagina one could determine that this mass was anterior to the anterior vaginal wall and fairly well fixed. On emptying of the bladder, the latter mass was still palpable, whereas the suprapubic tumor disappeared. A retrograde pyelogram and a cystogram were taken The pelves and ureters were quite normal. The bladder was enlarged and displaced upward in the pelvis and the inferior border was irregular, giving the impression of extrinsic pressure (Fig 1).

Operation was performed on March 2 by Dr. Robert Brennan The uterus and adnexae were found to be normal There was a hard mass anterior to the vagina. A frozen-section biopsy was reported as sarcoma The patient died twenty-four hours postoperatively.

Autopsy report (extract): The kidneys showed slight pelvic dilatation. The bladder was distended almost to the umbilicus. The symphysis pubis was cut and the rectum, bladder, and pelvic organs were removed intact. The rectum was found to be free of tumor. The main mass of tumor encircled the urethra, forming a large annular mass about 1¾ cm. in diameter, thus appearing as a greatly hypertrophied sphincter, or, as in the male, prostatic (Fig 2). Microscopic examination showed a cellular tumor with sarcomatous characteristics made up of at least two or possibly three elements Fibrous elements predominated. Smooth muscle cells entered into the formation of the tumor and sometimes gave rise to giant cells It seemed that neurogenic elements played a role The last, however, were derived from the sheath of Schwann and therefore were predominantly fibrous

Diagnosis perıurethral sarcoma (Fig 3)

Congenital lesions of the male child causing infravesical obstruction with obstructive uropathy, urosepsis, and uremia are well known to urologists and pediatricians Alertness on the part of the general profession to their incidence, their dire damages, and the clinical picture resembling "pyelitis" or "chronic interstitial nephritis," might permit some of these children

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 5, 1943

Exploratory laparotomy was performed on November 30, 1937, by a general surgeon. The preoperative diagnosis was rupture of the small intestine and mesentery. The postoperative diagnosis was contusions of the small intestine and mesentery with hydroperitoneum, contusion of the right kidney, retroperitoneal effusion. At operation the following findings were noted: About 300 cc. of slightly cloudy fluid were aspirated from the abdominal cavity. There was a fluid mass retroperitoneally on the right side over the kidney region, the size of an orange. The retroperitoneal area was explored.

Intravenous urograms were quite unsatisfactory because of meteorism, but a suggestion was seen of bilateral hydro-ureters.

On December 12, 1937, cystoscopy was performed. A No. 18 cystoscope was passed. Bladder mucosa was moderately congested; several ecchymotic areas were seen around the trigone. Indigo carmine injected intravenously failed to appear at either orifice at the end of twenty minutes. The right ureter was catheterized. There was an immediate rapid constant drip of urine from the catheter. Thirty cubic centimeters of sodium iodide were injected into the catheter, and an x-ray exposure was made. The same procedure was performed on the left side.

Following x-ray, the diagnosis of bilateral hydronephrosis and hydro-ureters, probably caused by congenital infravesical obstruction, was made. Trauma was not considered to have been important in this picture; the findings were considered to be merely coincidental.

The patient's condition became progressively worse, and he died on the ninth day from symptoms resembling uremia and urosepsis. Blood pressure on December 3, 4, and 5 was 168/100, 164/94, and 150/88. The temperature was septic in character and varied between 101.8 F. and 103.8 F.; the pulse between 120 and 140.

Autopsy report (extract): There was a marked perinephritic phlegmon on the right side extending down to the bladder. In the phlegmonous mass a large infected hydronephrotic kidney was found which was filled with purulent fluid. There was very little renal tissue which could be identified. The right ureter was markedly dilated and tortuous, and its wall was thickened. The left kidney was hydronephrotic, soft, and fluctuent, and very little renal tissue was identified. There was no gross evidence of suppuration in the left kidney. The left ureter was filled with fluid, the wall was thin, and on pressure fluid ejaculated from the left ureteral orifice.

The bladder wall was thin, the capacity increased. It contained about 300 cc. of cloudy fluid. The mucosa was injected throughout. The floor of the bladder neck showed no elevation. Distal to the verumontanum, a mucosal valve-like fold extended from the floor of the urethra to either side.

Another condition which may cause urinary obstruction with all the dire secondary changes in the upper urinary tract is congenital hypertrophy of the verumontanum. This condition may be associated with obstructive urethral folds or it may exist alone. The verumontanum is greatly enlarged and elongated. When it causes urinary obstruction enough of the verumontanum should be resected to permit easy and complete emptying of the bladder. This procedure may be a transurethral one with use of the McCarthy child's cystoscope and cutting current, or open surgery may be resorted to. Cases of this type have been reported previously.

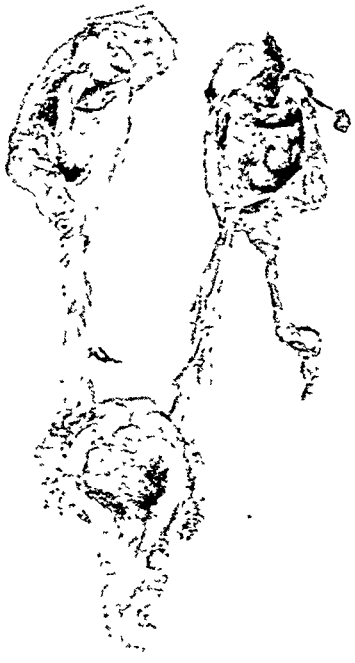


FIG. 4

Congenital contracture of the vesical neck is a pathologic entity which in most cases passes unrecognized during the period of childhood. It undoubtedly accounts for certain cases of vesical-neck obstruction which manifest themselves in adult life. When it is detected in childhood, the congenital cause is obvious, but in adults there is considerable confusion in attempting to classify the coarctations and median bars on a congenital or acquired inflammatory basis. This condition was studied and reviewed in the literature by Beer in 1915 and by Campbell in 1930. In some cases the condition is due to muscular hypertrophy of the internal sphincter. Beer stated that fibrosis may be a secondary change in a spastic sphincter in neuromuscular vesical disease with or without associated inflammation. Whatever the cause, the condition is most important since it produces urinary obstruction which is commonly complicated by

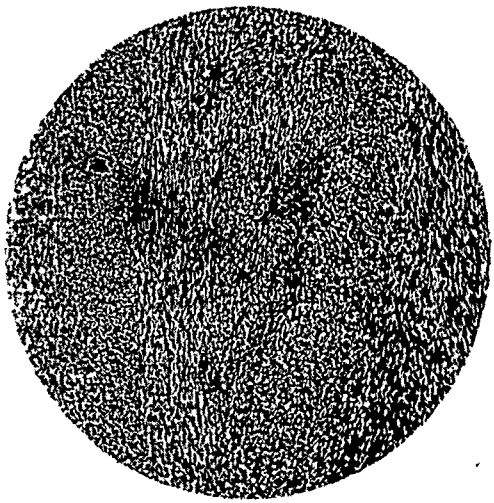


FIG. 3

the presence of pus and albumin in the urine. We suggested that supportive treatment be pushed, and after three days the child improved. We recommended a complete urologic work-up, and as usual we first took a flat x-ray plate. This revealed a complete absence of the psoas muscle markings and no evidence of either kidney. There was a marked flaring of the ribs. Although the child was only 13 years of age, the abdomen covered the entire 14-by-17 inch film.

An intravenous urographic study was then attempted. However, after three hours there was no evidence of dye in either kidney area nor in the bladder. On palpation, several large masses were felt in the abdomen. One was in the region of each kidney; there were also several small ones throughout the abdomen, and one large mass, piriform in shape, extended from the region of the umbilicus down to and behind the symphysis pubis. This we took to be an overdistended bladder, and on catheterization removed 10 ounces of urine but stopped because it was thought inadvisable to remove any more. Instead we replaced the drained urine with 10 per cent sodium iodide solution, removed 10 more ounces of the bladder contents, and replaced this again with 10 per cent sodium iodide. An x-ray exposure was now made which showed a bladder extending to the third lumbar vertebra. Gradual decompression of the bladder was instituted. It took almost four days to complete the emptying. As the bladder decreased in size, the abdominal masses disappeared and the respiratory difficulties diminished.

After one month of catheter drainage, a second cystogram was taken. This showed a much smaller bladder with a large sacculation. The psoas muscle marking and the kidneys could be visualized.

The urea nitrogen in this child dropped from 47 to 23 following bladder drainage, although there was only 5 per cent phenolphthalein excretion after a three-hour estimation. The patient now presented symptoms referable to possible infection, and in order to avoid further complications the urethral catheter was removed and suprapubic cystotomy drainage was established. Following this operation the patient made uneventful progress. Several weeks later we cystoscoped him to determine the type of obstruction that was present. A definite diagnosis of congenital valvular obstruction with dilatation of the posterior urethra and bladder was made.

The patient was kept under observation for one and a half years after admission. Several blood transfusions were given, but the extent of the kidney damage was so marked that the hope of prolonging life very long was not to be expected.

The patient's cardiac embarrassment, supported by a pair of damaged kidneys, gradually weakened him. Edema of the extremities and face became more evident. One morning he sat up in bed, complained of precordial distress, and died within the period of one-half hour.

Autopsy findings (extract) (Fig. 4): The penile urethra was normal to the junction with the prostatic urethra, where it narrowed down to a pinpoint opening reaching the lower end of the verumontanum. The vesical neck was dilated, and the prostatic urethra was funnel-shaped, narrowing toward the junction with the penile urethra and fitting over the urethra producing a valve-like junction. The prostate was normal. The bladder was small, contracted, and very thick, the wall measuring 1 cm. in thickness. The mucosal surface was thrown in numerous folds and there were numerous small diverticulae. The trigone and adjacent portion of the posterior bladder wall were hemorrhagic. The ureteral mouths were normal. Both ureters and pelvis were very markedly dilated. The ureter measured almost 2 cm. in circumference. The mucosal surface of the ureters and kidneys were similar. They felt like water-filled sacks, and, on opening, the pelves and calices were extremely dilated. The contents were slightly purulent in the calices. The kidneys were enlarged, measuring each 12 cm. in length. The surfaces were nodular, and on section the parenchyma varied greatly in thickness. The tissue markings were very markedly obscure and the surface appeared yellow in color. The capsule stripped with difficulty and was adherent in many areas.

Case 3.—The next case, E. P., was a white boy, 15 years of age, admitted to the hospital on November 30, 1937. While playing football, the patient fell against someone's knee and immediately felt a sharp pain across the entire upper abdomen, more especially in the right hypochondrium. There was mild shock. The temperature on admission was 100.6 F. The pulse rate was 108, respirations, 24, blood pressure, 140/90.

Physical examination revealed a well-nourished white boy, rather apprehensive, with dilated pupils, rapid pulse, and in mild shock. There was marked rigidity and fullness of the entire abdomen. The liver and spleen were not palpable. Tenderness of the right hypochondrium was marked.

moved from the posterior urethra, the larger measuring about 2 cm. by 1 cm.

Microscopic examination showed a polypoid growth covered by transitional epithelium like that from the posterior urethra. Beneath the epithelium there was a zone of loose edematous tissue containing many small engorged and thin-walled blood vessels. Several small thrombosed vascular sinuses were present. The central core of the mass was made up for the most part of involuntary muscle. Portions of the central core contained many vascular channels, some with thin, others with thick walls. A few rudimentary glands were present. These were lined with cubical epithelium, and the lumina contained a small amount of thin albuminous secretion. The tumor mass was benign throughout, and probably corresponded to a polyp of the posterior urethra arising from the median bar as a myomatous hypertrophy but containing a few rudimentary glands in the central area. The glands were apparently of prostatic origin.

Diagnosis: Polypoid myomatous nodule of the posterior urethra and prostate (Fig. 6).



FIG. 6

Summary

We have herewith presented two exceptionally rare pathologic entities, together with some of the commoner obstructive lesions at the vesical neck. All obstructive lesions should be diagnosed as early as possible. Therefore, whenever any objective or subjective signs or symptoms present themselves, relative to the urogenital disease, an immediate thorough urologic survey should be instituted.

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Discussion

Meredith F. Campbell, M.D., *New York City*—Drs. Ritter and Kramer have admirably joined in a much-needed missionary effort—namely, the direction of the attention of practitioners in general and pediatricians in particular to the unsuspected incidence and the potential gravity of urinary tract obstructions in the young. This is but one phase of the whole problem of urinary tract disease in infants and children and forcibly illustrates the fact that comparatively few of these lesions can be treated by pills and without adequate urologic investigation.

The citation of their case of periurethral sarcoma in an infant is, I believe, unique. I was also interested in their two cases of median prostatic lobe obstruction in the young because several years ago I reported this lesion in a 5-year-old boy who was seen at Bellevue Hospital and whose cysto-urethroscopic picture simulated in all details that of this condition as observed in adults.

The clinically encountered incidence of congenital valves of the deep urethra, hypertrophy of the verumontanum, and congenital contracture of the bladder outlet is low only because of failure to examine these young children—in short, because of the failure to recognize the indications for urologic investigation in the young. Drs. Ritter and Kramer have clearly pointed out that endoscopic diagnosis is comparatively easy, as is removal of the obstruction by transurethral resection.

I should like to direct attention to the high incidence and potentially grave significance of the congenital stenosis of the meatus. This lesion is usually overlooked unless secondary ulceration, usually with the appearance of blood on the underclothing of the young boy, alarms the parents. This ulceration has, in the past, largely been ascribed to ammoniacal urinary decomposition in the diaper—the so-called ammoniacal diaper. Both sterilization of the diapers and the application of salves to the ulcerated meatus have been advocated as proper therapy. If the tip of the penis is exposed, as it practically always is in the properly circumcised, the ulceration will usually be accompanied by incrustation and scab formation. If the prepuce is long, there may still be ulceration but without scab formation. At any rate, the congenital stenosis of the meatus is the underlying lesion, and I have yet to see an instance in which the condition cannot be permanently corrected by simple, liberal meatotomy and the maintenance of adequate aperture by subsequent periodic progressive dilatation with sounds. Meatotomy alone does not suffice; unless the meatotomy is followed by periodic dilatation of the meatus at five- to seven-day intervals, and for three or four times, the orifice will recontract, sometimes to smaller caliber than existed before meatot-



FIG. 5

severe infection. A few cases in the female have been described by Beer[6] and Campbell.[7] The pathologic picture is that of an increase of connective tissue in the submucosa of the vesical neck, extending sometimes into the trigonal musculature and always into the sphincter. Round-cell infiltration is usually present. Glandular changes are rarely noted in children. Interference in the opening of the internal sphincter is the first effect, followed sooner or later by vesical and upper-tract back pressure. Terminally the destructive changes in the urinary tract are identical with those of other infravesical obstructions. Usually, the internal sphincter is felt to be small and can be dilated only with great force.

Of the two cases of vesical neck obstruction which follow, one was of undoubted congenital origin, while both were unusual in that glandular tissue was found in the histologic study. In one infant, 19 months old, a lobular intrusion on the vesical neck floor of a median prostatic lobe caused the urinary retention. In the other case, the patient had acute urinary retention at the age of fifteen years. Four years later retention recurred and was no cured by simple catheterization. Relief required the removal of tissue from the floor of the vesical neck by endoscopic resection.

Case 4.—T. S., aged 19 years, white male, was admitted to the hospital with acute urinary retention. He had been unable to urinate for thirty-six hours, during which period he had been catheterized about every twelve hours. Four years before he had had a similar attack which required catheterization. Two years before he had been circumcised by his family physician because of urinary discomfort, frequency, and a phimosis.

We inserted an indwelling catheter and at the end of forty-eight hours it was removed. The patient was unable to void. Cystoscopy was carried out June 19, 1939, and a diagnosis of congenital fibrosis of the vesical neck was made. On June 21, 1939, an endoscopic resection of the floor of the vesical neck was performed. Laboratory studies showed the nonprotein nitrogen to be 30 mg. Urine showed albumin. The other laboratory findings were within normal limits.

The clinical diagnosis was acute retention and congenital fibrosis of the vesical neck.

The pathologic report stated that the specimen consisted of three small slivers of grayish tissue.

Microscopic examination: Section of the bladder neck and adjoining prostatic urethra showed that the mucous lining was hyperplastic and edematous with scattered round cells and polynuclears. Several adjoining prostatic glands were hyperplastic and showed large papillary projections into the lumina.

The underlying stroma was edematous and diffusely infiltrated with round cells and polynuclears. The deeper structure showed marked hyperplasia of the muscle bundles with intervening, edematous, loose fibrous stroma.

The patient was discharged from the hospital on June 25, 1939. Since that time he has attended college and has had no recurrence of his complaint.

Case 5.—Through the courtesy of Captain Anthony Cerrato, we were asked to see a male patient, 17 months old, in acute discomfort, and with a fever of about four days' duration. The urine contained large quantities of pus. On palpation, we noted that the entire left side of the abdomen and lumbar area were rigid. On catheterization a very cloudy specimen of urine was obtained. The child was admitted to the N.Y. Polyclinic Hospital for urologic study.

An intravenous urogram was unsatisfactory. The bladder was then filled with dilute diodrast solution and a cystogram was taken (Fig. 5). Here we noted a small bladder with an ovoid defect in the region of the internal sphincter and a bilateral vesicorenal reflux. The left ureter was markedly dilated, the right only slightly dilated.

On cystoscopy, the bladder mucosa appeared normal. However, a protruding mass was seen on the floor of the internal sphincter, which extended into the bladder and was traced into the urethra on withdrawal of the instrument. This was interpreted as a middle-lobe prostatic hypertrophy. Owing to the size of this middle lobe it was thought advisable to remove this growth transvesically. This procedure was carried out.

At operation, we were able to remove this lobe by surgical excision.

Pathologic report: The specimen consisted of two portions of edematous tissue, said to have been re-

Special Article

VOCATIONAL REHABILITATION—A PRACTICAL APPROACH

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OVER the years there has been a noticeable trend away from the evil of rejection and neglect of the handicapped to that of a pity which sapped initiative and gave only the semblance of comfort. However, with World War I, the importance of economic adjustment for these people slowly gained recognition. This adjustment is more readily effected for any handicapped group in one war year than in several ordinary years, because special attention is focused on all available industrial manpower; industry is not geared rigidly to ordinary economies; and the ranks of the handicapped are increased by disabled service men.

As the war continues, we must unhappily look forward to an increasing number of the handicapped. Educators, industrialists, and other groups conferring in a spirit of sympathy on the problems of rehabilitation of these people will find their well-intentioned gatherings unproductive unless a definite, constructive plan is drawn up wherein the rehabilitation processes lead toward assured jobs in industry. The present law providing that the returning soldier must receive his former job when the war is over does not take into account the disabled soldier who, because of his disability, is no longer able to continue at his former kind of employment. It is understood that certain of the handicapped will be completely unemployable. Only for them will the physical and psychological therapeutics be an end in themselves. For the employable handicapped the goal is the re-establishment of a self-respecting individual as a worker in a world of work. This result is the highest reward of therapy.

The permanency of a disabled person's adjustment is in great measure contingent upon the assurance that his condition will receive thoughtful consideration and that he will not be relegated to a lost world, but will be accepted for the capabilities that he possesses. Foremost among these capabilities are vocational aptitudes. These, when permitted to function under normal conditions, assure the closest thing we know to permanent total adjustment.

By far the greater number of the handicapped, as is the case in the general population, are unskilled or unspecialized workers. To categorize them into specific occupations for training is an injustice unless it is known that the skills developed will come up to normal economic standards and that there will be a market for that type of worker. Furthermore, there is no more reason to expect every disabled person to be capable of a highly trained skill than every "normal" person. A democratic philosophy of rehabilitation will adjust the mental and physical requirements in the case of each individual in accordance with his abilities. The idea of universal imposition of skilled training upon the handicapped is fallacious.

Rather than to artificially job-categorize the handicapped, we should train them as *versatile* workers who under general economic stresses and strains could readapt from one occupation to another. In recognition of the need for occupational versatility the curriculum in schools and workshops for the disabled should be revised, and adult education and refresher courses should be provided in accordance with this revision. We also must consider the importance of developing those traits that lend so much to the good worker—dependability, responsibility, appearance. Deficiency in these qualities too often leads to the downfall of a non-handicapped worker. In the case of the handicapped the effort should be made to enhance them into a compensating asset.

Careful, well-directed local surveys in industry are essential to determine those actually existing jobs that could be filled by various types of handicapped persons. Only in terms of these available jobs does vocational rehabilitation assume practical meaning. The government cannot consider, as did the Federal Board for Vocational Education in the last war, that "Vocational education . . . is the final stage in rehabilitation." We cannot leave our rehabilitant with the plate of vocational education before him, without the food of the job. The surveys of industry should include careful observation of those handicapped actually at work in sheltered shops and in outside industry, to determine whether or not there are certain coordinative processes or adaptations that we can definitely state are little hindered by the disability and which could be cultivated through a realistic approach in the school and work shop.

Vocational adviser, Rehabilitation Division of the Veterans Administration.

omy. It has been my observation that in practically every boy in whom circumcision has been performed because of surgical indication, and not as an obstetric encore, the meatus, like the frenum, is abnormally small and may advantageously be enlarged by meatotomy at the same time as circumcision. Urinary tract dilatation behind the small urethral orifice may be extreme. It may be confined largely to the urethra, the bladder picture may be that commonly seen in advanced prostatic obstruction, and, as I have on occasion observed, the ureters may be dilated to the size of the bowel and the kidneys reduced to thin shells encapping enormously dilated pelves. Yet all of this can be prevented by early recognition of the tight meatus and adequate treatment by meatotomy, or even simple dilatation by the passage of sounds.

Moreover, the urethra in the young female may be similarly obstructed. Here the back-pressure changes may be extreme but are simply those common to urethral stricture. I have never found it necessary to do a meatotomy in the young female, for the canal will readily respond to periodic progressive dilatation with sounds.

In closing I should like to express my personal appreciation to Drs. Ritter and Kramer for their excellent presentation of this most important problem of lower urinary tract obstruction in the young.

HEAT RASH MAY BE SERIOUS AILMENT

Most of us in the temperate zone think of prickly heat, or heat rash, as it is also called, as an affliction of babies. Adults who occasionally get it in very hot, humid weather look on it as a trivial, if irritating, nuisance. Even in the tropics, where it is more frequent, it is not generally considered serious.

For soldiers fighting in the tropics, however, it may be quite serious. *Lancet*, medical journal published in London, quotes one authority as saying that at Assab, in Eritrea, where intense heat is fortified by high humidity, cases were so severe as to affect materially the efficiency of Army units. Transfer to a cool climate was necessary.

The cause of prickly heat has long been a matter of debate among scientists. The fundamental condition is recognized to be excessive sweating. In one type of prickly heat, affecting the parts of the skin that have small sweat glands, the rash is made up of tiny red bumps. Under the arms and in the groins, where large-coil sweat glands occur, the rash is more like pemphigus, and large blisters form. According to the theory quoted by *Lancet*, in both types the sweat glands get out of order, as it were, as a result of excessive activity, and their ducts are blocked with congestion and retained secretion.

A serious aspect of the condition, in or out of the tropics, is the danger of the skin becoming infected. Boils, ulcers, and even fungus infections may result.

Treatment of prickly heat, says *Lancet*, "is not dramatically successful."

Scrupulous cleanliness, the avoidance of sweating, and the wiping away of sweat as it forms are more successful, according to *Lancet*, than remedies applied to the skin. Doctors often advise dusting powder, or dabbing with 50 per cent alcohol followed by dusting powder. Obviously, the cloth or towel used to wipe away sweat should be clean.—*Science News Letter*

BLOOD DONOR RESPONSES

Americans are becoming "blood donor" conscious, what with so much being printed about the various blood bank programs throughout the nation and the various activities of many of our medical societies. Not long ago it was a problem to find blood donors, particularly those having blood of an unusual type, such as persons having recovered from certain diseases. Nowadays, a plea published in a local paper usually brings many responses, and the proper donor is readily found. The Lake County Medical Society recently advertised for donors who had recovered from Streptococcus viridans infection, and almost one hundred persons immediately responded. Of course, all these were not of the type sought, but at least four were deemed potential donors and a check on their hospital records was made at once. In another case the printer and the proofreader became interested in a story to be used in a local paper and recalled that someone they knew had had the disease mentioned in the plea. Contact was made and the donor found before the paper reached the reading public.—*J. Indiana State M. A.*

DIVERGENT BEAM FOR TAKING X-RAYS

A divergent beam has successfully been used in taking x-ray photographs of crystals. This method promises to be extremely useful in studying the arrangement of atoms in the crystal. As a short exposure is required, it will aid particularly in research with short-lived crystals.

This new development in x-ray photography, reported by the British Council, was made at the Royal Institution, London, by Dr. Kathleen Lonsdale with a tube designed by Dr. A. Muller.

When the planes of atoms in a single crystal reflect a fine x-ray beam, the reflected beams photograph as sharp black spots on a light background.

Substituting a divergent beam for the usual cylindrical pencil, the background becomes darker and the former spots open out into curves.

Besides the reflection curves, which are black, the photograph shows "deficiency" curves. These lines are lighter than the general background because radiation in certain directions has been removed from the original beam.—*Science News Letter*

has shown a thorough lack of knowledge both as to the importance of its work and its far-searching effects. It is true it has some two or three thousand employees, great and small, but where are the results that they promised the Congress and the Nation? And after 18 months in the saddle."

Specifically, there are seven points basic to a practical vocational rehabilitation program for those discharged from our armed forces:

1. Place particular emphasis in vocational rehabilitation on developing through the various channels of publicity receptiveness by the public of the abilities of disabled ex-service men, rather than on "streamlining" these veterans with vocational education for non-existent jobs. Sufficient funds made available for such publicity would eliminate the necessity for the extensive creation of jobs through unnecessary public work projects.

2. Consider the nature of the jobs available, particularly under postwar conditions, before entering upon a vocational training program. Avoid training 100 men for 5 existent jobs.

3. Place emphasis on versatility and adaptability in the vocational training of the ex-service man rather than on artificial categorization within specific occupations—all the blind are not necessarily pianists or typists.

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7. Develop rehabilitation personnel of such caliber that throughout the entire process the real meaning of vocational rehabilitation can be realized and can be properly interpreted to the ex-service man.

The loss of one or more senses or limbs does not render the individual vocationally helpless.

If vocational rehabilitation is a sound, social investment, if enforced idleness is a breeder of discouragement, despondency, and bitterness, the government must take a strong stand behind a constructive vocational rehabilitation program.

INSECT PESTS IN HAWAII

In the *Hawaiian Medical Journal* for March and April, 1943, C. E. Pemberton, entomologist at the Experiment Station of the Hawaiian Sugar Planters' Association, has listed a group of insects that may be found on the island and that have bearing on the health of the residents.

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SUICIDE AND THE WAR

It is a statistical paradox that suicide, in times of war, is actually found to become more rare than in peacetime. National figures and also the records of the Metropolitan Life Insurance Company present the evidence.

The 1942 and 1941 rates were almost the same and were, with one exception, the lowest on record. Similar decreases in the suicide rates are observed in England, Germany, and nearly every other belligerent country.

According to the Metropolitan Life Insurance Company, the downward trend is due to the psychologic effect of a national calamity, with affairs of the nation being put above the less important affairs of the individual.

Suicide nevertheless remains a major problem of medicine and sociology. In the United States more than 18,000 persons every year put an end to their lives, and probably 100,000 others make unsuccessful attempts at suicide.—*Medical Record*

It would be well worth the government's efforts to periodically make such surveys as part of a permanent social program for the handicapped. Far better an economic producer, no matter how unspecialized the work, than a relief suppliant or an idle pensioner.

The survey of wartime industries in search of jobs for the handicapped worker is a temporary though profitable procedure; however, training for such jobs cannot in general be substituted for true vocational rehabilitation. Vocational rehabilitation seeks the restoration of a disabled person to a permanent livelihood. Likewise, federal work projects in which disabled soldiers would find employment are satisfactory only as temporary or supplementary measures. Plans for such projects are ill-founded and misleading and provide merely for sheltered workshops on a grandiose scale if they do not recognize that the ultimate goal of vocational rehabilitation is restoration of the rehabilitant to the normal non-artificial economic life of the American community.

We see about us sympathetic appeals for aid for the handicapped—and these are fine. In addition, however, the public should be made aware of the real capabilities that many of the handicapped possess, and the contributions they can make to the community. The publicity specifically should be an outgrowth of the surveys which would determine the specific abilities and adaptations of the handicapped on the job. It would be well worth while to compile lists of those industrial organizations that not only cooperate in the surveys, but would also have definite positions open for disabled soldiers; thus lip service would give way to constructive social aid. The "lift" that is given fellow workers in outside industries when they see the disabled overcoming their handicaps is a factor that we should reckon with in their placement, and the public should know about it. A well-made educational "short" movie would be very helpful in indicating that the race in life is not necessarily won by the strong, but often goes to the most keenly challenged. This view cannot be overemphasized: vocational rehabilitation of the handicapped entails a right-about-face by the public in its acceptance of handicapped labor. This is a deep-seated sociological problem that cannot be remedied by a sprinkling of placement counsellors for the handicapped, but requires the forceful aid of the media of publicity and promotion, and the support of "healthy" pressure groups.

Educators of the handicapped must clarify the semantic inaccuracies on the part of industrialists and statesmen whose decisions will largely determine whether these people will be put to work during the war and in the time to follow. They must correct those who believe that all people classified as blind are necessarily totally blind, that the totally blind are unemployable, that the one place for a person with cardiac disease is home in bed, that the mentally retarded are "too dumb" to do any work at all. They must also stress the social significance of the use of competent handicapped labor. In this respect, the placement of the handicapped must be viewed as a community matter that requires the aid of all constructive social forces and the close cooperation of government and private agencies.

The abandonment of severe physical restrictions in civil service laws and the modification of existing insurance laws would aid in the vocational adjustment of the handicapped. Clinical or curative workshops, unlike sheltered shops, should be established as diagnostic laboratories. Such workshops are preferable to the hospital in restoring mental and physical employability. Case work methods, so fundamental to rehabilitation because of the uniqueness of each problem, could be well carried out in such workshops. Placement of the handicapped cannot be a mechanical procedure, but must be considered as social case work from first contact with the case until vocational adjustment is assured.

Only through a frank recognition of our mistakes in the field of vocational rehabilitation in World War I and in the years that followed will we now successfully meet similar problems in the days that confront us. Dr. James Bordley, Jr., through whose efforts the Red Cross Institute for the Blind was established in Baltimore in World War I, wrote as follows in a letter published in the *New York Evening Post* of April 27, 1920: "What a fiasco the whole handicapped-soldier business has been! The Army is through with him and the Federal Board for Vocational Education has not yet started. On every side you hear bitter complaint. Indeed, while I am opposed to the bonus now sought, I can see clear basis for the complaint that the handicapped soldier has not had a square deal. He has been the plaything of a lot of people seeking personal glorification; he has been treated in a 'business-like' way, which, in plain English, means that he has been held down to the very least he could be induced to accept. What a contradiction of those bright promises that were held out but a few months ago!

"The incompetence of the Federal Board for Vocational Education is one of the most striking 'incidents' of the postwar session. So far it has adopted no definite policy; has under training only an infinitesimal portion of the injured;

has shown a thorough lack of knowledge both as to the importance of its work and its far-searching effects. It is true it has some two or three thousand employees, great and small, but where are the results that they promised the Congress and the Nation? And after 18 months in the saddle."

Specifically, there are seven points basic to a practical vocational rehabilitation program for those discharged from our armed forces:

1. Place particular emphasis in vocational rehabilitation on developing through the various channels of publicity receptiveness by the public of the abilities of disabled ex-service men, rather than on "streamlining" these veterans with vocational education for non-existent jobs. Sufficient funds made available for such publicity would eliminate the necessity for the extensive creation of jobs through unnecessary public work projects.

2. Consider the nature of the jobs available, particularly under postwar conditions, before entering upon a vocational training program. Avoid training 100 men for 5 existent jobs.

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Special Article

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THE most important business today is winning this war. The militarist criminals of Tokio and Berlin must be crushed. To the furtherance of this single cause, the constructive genius of our nation has been harnessed. In the achievement of this purpose, a task still lies on our hands, and I mean *our hands*. What is this task? Increasing production of war materials, and thus contributing mightily to that day when our enemies shall be defeated, and brought to shame.

We know that in this war we have not yet settled accounts, to our own satisfaction. Upon this 1943 Navy Day, every true American has a burning desire within to share in that visitation to come, of due offences committed against us, by our enemies. No given group wishes this more strongly than we here present.

Envisage this war as we will, we know that so far all that this nation has suffered is inconvenience. Our cities have not been bombed with the frightening destruction and loss of life that has been the lot of London. True and saddening it is that there are those among us who have experienced deep and lasting sorrow over the loss of sons in combat, but, as a people at war, our casualty list has not been a heavy one. The radio and press make the most of the favorable occurrences of this war and, likewise, we from habit picture in our minds things as we want them to be, and not as they are. We know not yet the meaning of the real pain, suffering, and sacrifice involved in this war.

Modern sea-air power consists of ships, planes, and shore stations. Success in the United States Navy's war production program therefore depends upon our ability to produce, and then deliver these implements of power wherever they are needed.

The phenomenal expansion of our shipbuilding is unequaled in the world's history. No naval construction program of comparable size and speed has ever been carried out by any other nation. In the three years following July 1, 1940, the Navy completed 15,376 new ships of all types. Construction and machinery for these vessels cost over $5,300,000,000. They compose a fleet of more than 2,200,000 displacement tons. Displacement tonnage is the measurement of naval vessels and is the actual weight of the ship. The new fleet completed since July 1, 1940, comprised: 333 combatant vessels, 1,117,054 displacement tons, costing more than 3 billion dollars; 1,274 mine craft and patrol craft, 199,765 displacement tons, costing $820,000,000; 151 auxiliaries and 654 yard and district craft; 12,964 landing craft, aggregating 610,781 tons, costing more than one billion dollars.

Ability to build and to continue building at the present rate of construction is one of the foundation stones of our military strategy. It underlies our amphibious attacks in the Pacific, the Atlantic, and the Mediterranean oceans. It protects our long exterior supply routes running across thousands of miles of ocean, and, last but not least, makes practicable a strategy of attack with all the risk which it implies.

In the first six months of this present year, our Navy Yards and private shipbuilding yards completed construction of more than 6,000 naval craft of all classes. In the same period of time, substantially more than 9,000 planes were produced for the Navy. Ship production had an increase of 250 per cent, or two and one-half times the number of vessels completed in the same period of 1942.

Plane production was doubled. However, this does not represent a net increase in combat strength, for many of the new planes are training and utility models and over half of the ships built are landing craft.

Approximately 3,000 ships were required in the invasion of Italy. This gives us some idea of the number of ships which will be needed for the larger invasions to come. To this number must be added the inevitable losses we shall suffer when we move to destroy our weakened but none the less determined and arrogant foes. Furthermore, in order to crush our enemies we have been forced to fight this war on widely separated fronts, all over the world. Thus it may be seen that although the United States has built its Navy into a mighty world power, it is still small when judged by the size of the task which lies before it.

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War production materials, whether they be guns, ammunition, planes, supplies, or equipment, to serve a useful purpose in this war, have to be transported. Until we possess sea-air power sufficient in strength to gain control of all land and sea, we cannot be certain of victory. This means, we must undergo the formidable task of building surface, submarine, and air forces sufficient to enable us to carry the war to every sea and to initiate a first-rate naval power in the Pacific.

For the present, we must get away from the comforting feeling that the war is already won, and that while we may lose at the start we are bound to win in the end. We must not make the mistake of thinking that this war is the same as the last one—to be fought by our Army and Navy, with little left for the rest of us to do but watch, pray, and cheerfully buy War Bonds.

Everyone should know that we are a long way from winning this war, and only a foolish man counts the day of conquest before it occurs. There is such a thing as a "vulgar optimism"—a disposition to look upon a situation as being brighter than it really is. How dangerous such waves of "vulgar optimism" are may be realized when we recall that while, indeed, we were striking devastating blows at Japan's navy, Japan was gaining ground in China, entrenching herself in Burma, and accumulating enormous quantities of raw material in the Dutch East Indies and in the Southwest Pacific.

After the same fashion, the Axis power, overrunning the lowlands, conquered France and Poland, until the increasing weight of Allied power caught them counting their chickens before these were hatched. Anything can happen the moment we give way to this "vulgar optimism," which is the result of feeling too secure and too confident.

The fact of the matter is that this war is being fought not only afar off but right here at home as well. It cannot be won unless we at the home front do our share.

How can we protect our American soldiers and sailors if we deny them that which they need to kill with, instead of they themselves being killed? If we give our fighting forces that which they need to kill our enemies, then we must work harder and make greater sacrifices. It seems to me that this should preclude strikes and strikers.

What is the difference between a worker in a gun and ammunition factory, who throws down his tools with which guns and ammunition are made, and the soldier or sailor who throws down his gun and refuses to fight? In substance there is no difference except this—that we consider very just the punishment meted out to the traitor who throws down his gun and for his treason for refusing to fight is shot dead at his post.

Nothing is more important than the safety of America. America can never be safe if industry has to battle for its life and existence instead of battling the enemy. Industry, if it contributes to America's freedom, must produce instruments necessary to the winning of this war. The transformation that has taken place in industry indicates that there are multitudes on the home front who so toil to win this war that there is a just and fair division of labor between themselves and the government, whom they serve in its hour of need. With cool and grim determination they work to win this war, which they believe with all their heart and soul to be *their* war.

But let us remember on this 1943 Navy Day our sons in battle. Even while we are gathered together here enjoying the freedom and plenty of this great country of ours, many men, with no choice in the matter, are dying in Guadalcanal, Africa, Italy, and on the land and seas, for us.

For our enemies, this war cannot be lost while there is left to them one single means of bringing disaster upon us. Our enemies will fight with a satanic bitterness, born of what they know will befall them, when defeat comes. These militarists of Tokio and Berlin know that their dreams of world domination will never be realized—and that the day will come when they will be world conquerors conquered by grief—and *what* grief!—if *we* keep at it.

Somewhere I have seen a painting of Napoleon Bonaparte upon the island of St. Helena. There was nothing behind him but ashes, nothing ahead but death. Day by day he sat on that deserted island until his marvelous mind became clouded with its own vapors, his eyes became great wells of sorrow, his sensitive features became marred and pinched by chagrin—a world conqueror conquered by grief. A greater disappointment than that of Napoleon will be the fate of those who hurled this bloody war upon us.

Admiral Halsey is quoted as having said: "To get our enemies we must go after them"—and this principle he practices. We must *go* after them to *get* them. We must make it hot for them as Admiral Adolphus Andrews and his command made the cold Atlantic Ocean hot for the enemy submarine menace from Maine to Florida, along the eastern sea frontier, 600 miles out to sea.

This is no part-time war. The conversion from peacetime to wartime production, if carried on successfully, makes it imperative that this be a full-time war. We dare not give a minute to the enemy. Each individual who is doing his duty is shortening the time necessary to win the war. Each individual who shirks his duty, or who is not thorough in his work, stands in the

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sheets tell the story of whether or not we are deserving of the "well done," so greatly prized by Navy tradition. For the economy we have practiced in the spending of the very large amount of money entrusted to our care, we have confidence that we shall not "be weighed in the balance and found wanting."

The Navy Day, 1943, is being celebrated by the Kiwanis Club of New York and it has been the purpose of your Navy Day Committee, of which Dr. Harold Korn is chairman, to emphasize the Army and Navy "E" Production Award given for excellence in war production. The Army and Navy "E" is not lightly bestowed.

What is the Army and Navy "E" award? In 1906, the Navy instituted in the Fleet an Award for Excellence, which has been known ever since as the Navy "E." It was first awarded for excellency in gunnery and later extended to include outstanding performance in engineering and communications. An honor not easily won nor lightly bestowed, it has remained a matter of deep pride to the men of the Service who received it. When the rising tide of war in Europe placed a premium on the production of equipment for war, the Navy "E" award was extended to embrace those plants and organizations which showed excellence in producing ships, weapons, and equipment for the Navy. Then came Pearl Harbor—and with it a demand for war production such as the world has never known, an awareness that our fighting forces and the men and women of American industry are partners in the great struggle for human freedom; and on the part of all Americans there arose a fervent resolve to work and fight together until victory in that struggle be final and complete.

Out of this high resolve was born the Army-Navy Production Award, which stands today as our fighting forces' joint recognition of exceptional performance on the production front of the determined, persevering, unbeatable American spirit, which can be satisfied only by achieving today what yesterday seemed impossible.

No aviator who brings down enemy planes, no regiment of soldiers with honored, tattered, shot-torn colors has a right to greater pride than those factories, which for meritorious and distinguished service to the United States of America have been honored with the presentation of the Army-Navy Production Award. By their unfailing spirit of patriotism, by their acceptance of high unselfishness to the call of duty, by skill, industry, and devotion on the production front, they have made an enduring contribution to human freedom itself. In less time than anyone could believe, and in far less time than Germany guessed, they have given us mass production of materials necessary for the winning of this war and the preservation of our country.

There are long months ahead, and, as the years pass, we shall struggle more and more. We shall be asked to suffer, and sacrifice more and more, for the sake of that great end—VICTORY.

Finally, what we are working and fighting for? President Roosevelt's classic phrase "freedom from want" proclaims a major objective. It is true that man cannot live by bread alone, yet he cannot live without bread. With man's growing conquest of nature, we have passed from an age of insufficiency into an age of abundance. The time is at hand when every man, if he learns to live at peace with his neighbor, need no longer go through life in poverty. He can be well nourished, decently educated, and enabled to raise himself in the scale of human living. Here lies the nature of our Civilization, and that for which we are working and fighting. It seems to me that we should see this clearly, so that it will be an incentive for all of us to fight and work harder. With man's material and social life goes the right to think, and worship, and express his thoughts, and to act in accordance with his conscience—the character of all freedom-loving people. Victory will be won, and we shall share in the success of this common task in providing freedom from want when the enormous task of destroying our enemies is completed.

Then we shall pray better in our hearts —"God bless America"—America for whom we make sacrifices, for whom we work, and pray, and fight, and for whom we give up our sons, who pass the ammunition, till we all are *free.*

PARENTS LESS LIABLE TO DEATH FROM CANCER

Parents are less liable to death from cancer than other people. Harold Dorn states (in *Human Biology*) that for both men and women, those who marry and have children are less likely to die from cancer than those who remain single, but those who marry and have no children have the highest death rate from cancer.

While the difference in the death rate for men was not so marked, the mortality indices for married, widowed or divorced, and single women for England and Wales were 100, 117, and 105.

Statistics compiled from records in England, Wales, and Australia show that childbearing decreases the likelihood of development of breast cancer, but increases the chances of cancer of the genital organs for woman.—*Science News Letter*

way of winning the war, and lengthens the time it will take to win the war. Defeat of our enemy requires leadership and bravery on the home front, as well as in battle on the seas and in lands across the seas. These qualities so far as the home front are concerned are best expressed in terms of harder work and more hours of it. President Roosevelt put the matter well when a few weeks ago he said: "This is not the time for exultation. There is no time now for anything but working and fighting."

Experience is worth something, also. Experience has taught us many valuable lessons, among which is the fact that in spite of a good start on a scale never dreamed of before in history, there is much room for improvement. Industry must eliminate delays and duplications, and give even more heavily to the total output of mass production.

One matter of importance is that we must redouble our care in the spending of money entrusted to us. Frequent directives and numerous comments in letters received from the Bureau of Medicine and Surgery emphasize the urgent necessity of conservation of medical supplies and equipment. For three years, the Congress of the United States has granted without question appropriations requested by the Navy Department to carry on this war. The wisdom of this confidence in the Navy is already apparent in that part of the task of providing for our national safety assigned to the Navy.

The medical officer in command of the Naval Medical Supply Depot, New York—Rear Admiral Kent C. Melhorn, (MC), USN, whom I represent—firmly emphasizes how necessary it is to prevent procurement over and above that which is essential. To that end inventories are carefully kept, and efficiency, good business judgment, and thoroughness are exercised in the handling of the vast sums of money entrusted to our care. To those who are charged with the planning, procuring, and administering medical supplies and equipment, the cash expenditure each month has been something to think about.

In the facing of the problems of procurement of medical supplies and equipment, the manufacturers saw that they were to embark upon a production schedule far above and beyond anything previously attempted, or even conceived. Additional facilities were required and the personnel had to be greatly augmented. Manufacturers were sensitive to the charge of profiteering and were desirous of remaining free from criticism of high prices for articles which they were to furnish.

The cost-plus form of contract is not used, being unnecessary because the definite costs are known, and contracts can be based directly on the absolute costs. Contracts are placed with the lowest responsible bidder for the best and most suitable article. The law contemplated that all awards should be made to the lowest acceptable bidder. .

In the final analysis, the solution of needs depends to a large extent upon experience, judgment, and the intelligence of those who are charged by the government with this responsibility.

In procurement of supplies, the quantities required depend upon the exigencies of the Naval Service. The articles to be purchased, as a rule, are those included in the Standard Supply Catalogue or Table of the Naval Medical Supply Depot. To these may be added new articles as and when needed to meet the requirements of the Naval Service.

The activities at the Naval Medical Supply Depot are procuring, stowage, and distribution.

All supplies and equipment procured are subject to observation, inspection, and tests by our own laboratory and also inspection by the authorities of the United States Government. Factories are carefully inspected. When a manufacturer is found qualified to meet the requirements of a contract, it is subject to acceptance.

In carrying the Medical Supply Depot to shore stations and to the ship's side, as I have been privileged to do for the past seven months (and I have boarded well over three hundred ships in that period of time), I have had occasion to discuss with the various medical department representatives many problems relating to our medical supplies and equipment. Always they have been most cooperative in the matter of logistic data and the conservation of supplies. It has been the policy of this Command to strongly suggest that a record be established on shore stations and ships in the Ledger, on form W, of the minimum quantity, maximum quantity, order point, average annual rate of issue and reserve quantity, order point, average annual rate of issue and reserve quantity, and unit cost for each supply catalog item which is normally required for facilities maintained at the activity. It is a rule that an activity, be it a shore station or ship, shall maintain on hand a quantity of supplies not less than the minimum quantity and not more than the maximum quantity.

The question arises: How is the composition of items subject to minimum requirements determined? First, by past records of issue of use, second, by the type of medical services required by individual activity—for example, the stations and ships require a greater variety of medical supplies than smaller units.

In the final reckoning, figures on our ledger

upper abdomen, chest, and neck. There was definite nuchal rigidity but no Kernig sign. Lumbar puncture revealed cloudy fluid under pressure, 1,950 white cells per cu. mm., meningococci, no sugar, and globulin. In twelve hours 13.5 Gm. of sodium sulfadiazine were given intravenously, and the blood level was 20.9 mg. per cent. Because of severe headache, the spinal tap was repeated and a level of 14.6 mg. per cent was found in the spinal fluid. Twenty-four hours after the initial dose of sulfonamide, the patient developed frank hematuria, but the temperature was normal. However, sulfadiazine therapy was continued and a blood level of 13–15 mg. per cent was maintained. The urine gradually cleared and recovery was uneventful.

Case 5.—C. F. J., aged 43, was admitted on March 15, 1943, with a history of severe headaches for two days, followed by chills, fever, and vomiting. Examination revealed definite nuchal rigidity and a positive Kernig sign. The patient was fully conscious and alert. Spinal tap revealed a cloudy fluid containing 5,750 white cells per cu. mm., no sugar, globulin, and many meningococci. Six grams of sodium sulfadiazine were given intravenously. In sixteen hours a total of 20 Gm. (14 Gm. orally) were given and the blood level was 24.6 mg. per cent. Twenty-four hours after admission he was afebrile and asymptomatic. Recovery was uneventful.

Case 6.—W. L. S., aged 32, was admitted on March 17, 1943, in a stuporous and very restless state, with onset of severe headache and malaise about thirty hours before admission. Examination showed questionable neck rigidity but positive Kernig and Brudzinski signs. Spinal tap revealed markedly cloudy fluid, 15,000 white cells per cu. mm., globulin, and meningococci. Within six hours 10 Gm. of sodium sulfadiazine were given intravenously in three doses and a blood level of 15.3 mg. per cent was obtained. The patient developed frank hematuria, but he became afebrile in twenty-four hours and made an uneventful recovery with no further sulfonamide therapy.

Case 7.—F. J. S., aged 25, was admitted on March 25, 1943, with a history of nausea, vomiting, and headache of eighteen hours' duration. Examination at this time was entirely negative. The following morning the patient had projectile vomiting and severe headache but no neck rigidity. Spinal tap revealed cloudy fluid under pressure, a cell count of 11,500 per cu. mm., and meningococci. Six grams of sodium sulfadiazine were given intravenously. Three hours later the blood level was 12.2 mg. per cent. Three grams of sodium sulfadiazine were given intravenously every four hours for three doses. The highest level obtained was 17.3 mg. per cent. The patient became afebrile in twenty-four hours and his recovery was uneventful.

Case 8.—S. T. P., aged 22, was admitted on April 15, 1943, with a history of vomiting, severe headache, and malaise of twenty-four hours' duration. He was drowsy, had nuchal rigidity, and positive Kernig and Brudzinski signs. Lumbar puncture revealed 12,400 cells per cu. mm., and sugar, globulin, and meningococci. Six grams of sodium sulfadiazine were given intravenously, followed by 4 Gm. intravenously in four hours. The maximum blood level obtained was 22.5 mg. per cent eight hours after the initial dose. Nineteen hours after admission the patient was afebrile and asymptomatic. His recovery was uneventful.

Case 9.—J. P. P., aged 20, was admitted on April 25, 1943, with a history of infection of the upper respiratory tract and sudden onset of chills, fever, and severe diffuse headache. The patient was drowsy and had moderate nuchal rigidity, with positive Kernig and Brudzinski signs. A spinal tap revealed 102 cells per cu. mm., with the presence of sugar and globulin. No organisms were found. A second lumbar puncture twelve hours after admission showed 700 cells per cu. mm., with 98 per cent polymorphonuclears. Again no organisms were found. Six grams of sodium sulfadiazine were given intravenously on admission. Four hours later a second dose of 4 Gm. was given intravenously. The second blood level taken eight hours after the initial dose was 28 mg. per cent. In twenty-four hours the patient was afebrile and made an uneventful recovery.

Case 10.—E. P. P., aged 25, was admitted on April 26, 1943, with a history of headache and vomiting for two days. Spinal tap revealed 3,000 cells per cu. mm., meningococci, no sugar, and globulin. Six grams of sodium sulfadiazine were given intravenously together with 4 Gm. of sulfadiazine by mouth. Four hours later the blood level was 16.7 mg. per cent. Eight hours after the initial dose, the blood level was 20 mg. per cent. One gram of sulfadiazine was then given by mouth every four hours. In twenty-four hours, the patient was afebrile and remained so for six days. In the meantime the sulfadiazine was discontinued. On the seventh day he developed a temperature of 101 F. and complained of headache. A spinal tap revealed 100 cells per cu. mm., and sulfadiazine therapy by mouth was again instituted. His temperature became normal in twenty-four hours and he made an uneventful recovery.

Case 11.—D. E. G., aged 31, was admitted on April 26, 1943, with a history of chills, fever, and headache of one day's duration. The patient was drowsy and confused. He had nuchal rigidity, a positive Kernig sign, and generalized purpuric rash. Lumbar puncture revealed 18,000 cells per cu. mm. with 98 per cent polymorphonuclears, and meningogocci, and was negative for sugar and positive for globulin. One dose of 10 Gm. of sodium sulfadiazine was given intravenously. Four hours later the blood level was 21 mg. per cent. Eight hours after admission he was afebrile and his sensorium was clear. He made an uneventful recovery with only the 10 Gm. of sodium sulfadiazine given on admission.

Case 12.—G. L. B., aged 37, was admitted on April 28, 1943, with a history of severe occipital headache, chills, fever, nausea, and vomiting of one day's duration. There was a purpuric rash all over the body, nuchal rigidity, and positive Kernig and Brudzinski signs. Lumbar puncture revealed 270 cells per cu. mm., 98 per cent polymorphonuclears, and meningococci. It was negative for sugar and positive for globulin. A single dose of 10 Gm. of sodium sulfadiazine was given intravenously on admission. Four hours later the blood level was 41.6 mg. per cent. Eight hours after the initial dose the blood level was 34 mg. per cent, and another blood level taken twenty-four hours after the first dose revealed 10.2 mg. per cent. The patient had not been given any additional sulfadiazine. Because of severe headache, lumbar puncture was repeated twenty-four hours after admission. The spinal fluid showed 19,600 cells per cu. mm., with 99 per cent polymorphonuclears, and many meningococci. It was then that the drug was resumed. He was given 2 Gm. of sulfadiazine every four hours by mouth. Forty-eight hours after admission he was afebrile and made an uneventful recovery.

Case Report

MASSIVE-DOSE SULFADIAZINE THERAPY IN MENINGOCOCCUS MENINGITIS

GEORGE KAPLAN, Maj., (MC), (AUS)

THE efficacy of the sulfonamides in the treatment of meningococcic meningitis is now definitely established.[1-4] Finland *et al.*[5] and Rammelkamp[6] decided that sulfadiazine is the preferred drug in the treatment of acute bacterial meningitis. Janeway[7] suggests that in seriously ill patients the initial dose of sulfonamides be given intravenously in the form of the sodium salt and in adequate dosage. All our knowledge of high dosage therapy with high blood concentrations has come since the introduction of sulfadiazine, principally because with sulfapyridine and sulfathiazole it was impossible to procure high levels because of their severe toxic reactions and poor absorption.[8] Dick[9] reported a case of subacute bacterial endocarditis in which at the start of therapy a single dose of 40 Gm. of sodium sulfadiazine was given intravenously. The blood level of free sulfadiazine following this injection was 89 mg. per cent. Borden and Strong,[10] in their cases of epidemic meningitis, gave an initial dose of 4 to 5 Gm. sodium sulfadiazine in 100 cc. distilled water intravenously, followed by 2 Gm. orally every four hours. In addition, they used 15 to 30 cc. of polyvalent antimeningococcic horse serum in the majority of their cases.

Instead of following the usual routine dosage, it was decided to obtain a blood level of about 20 mg. per cent as quickly as possible. Since the conjugated or acetylated form has little therapeutic activity[7] we are concerned with the free form only. Six grams of sodium sulfadiazine were given intravenously as an initial dose. Four hours later blood level determinations were usually 10-12 mg. per cent. Additional doses were given orally and/or intravenously. The desired level was usually reached eight hours after the initial dose. In the last two cases the initial dose given was 10 Gm. sodium sulfadiazine intravenously, and the desired level was obtained in four hours.

Case Reports

Case 1.—R. W. W., aged 39, was admitted on March 7, 1943, with a history of headache, chills, and "sore back" for the past two days. Examination revealed positive Kernig and Brudzinski signs. There was no nuchal rigidity or skin rash. Spinal tap revealed cloudy fluid under moderate pressure with 3 plus globulin; a negative reaction for sugar; a cell count of 5,600 per cu. mm. with 98 per cent polymorphonuclears; and meningococci. The patient was given 6 Gm. of sodium sulfadiazine intravenously and 2 Gm. of sulfadiazine by mouth. In the first twenty-four hours he received a total of 24 Gm., bringing the blood level to 16.8 mg. per cent. During the next eight hours an additional 3.5 Gm. were given orally, making a total of 27.5 Gm. in thirty-two hours, at which time the blood level was 21.2 mg. per cent. By this time he was afebrile and asymptomatic, and the subsequent course was uneventful.

Case 2.—S. S., aged 24, was admitted on March 11, 1943, with history of chills and headache of twelve hours' duration. Examination revealed a maculopapular rash with a few scattered petechiae. There was no nuchal rigidity and no Kernig or Brudzinski signs. Lumbar puncture revealed a clear fluid under normal pressure, a white cell count of 47 per cu. mm., a negative reaction for globulin, a positive one for sugar, and no organisms. Twenty-two hours after admission the picture changed. Many petechiae appeared, and there was nuchal rigidity. Spinal tap revealed cloudy fluid under pressure, a positive reaction for globulin, a trace of sugar, a cell count of 6,720 per cu. mm., and many meningococci. The patient was given 6 Gm. of sodium sulfadiazine intravenously, and a level of 13.4 mg. per cent was obtained in four hours. During the next twenty-four hours 13 Gm. of sulfadiazine were given by mouth. The blood level reached 20 mg. per cent. By this time he was afebrile. He made an uneventful recovery.

Case 3.—M. S., Jr., aged 22, was admitted on March 13, 1943, in semicoma. His comrade stated "He seemed well when he retired but awoke during the night with severe headache, chills, and vomiting." Examination revealed a very widespread petechial rash all over his body, with ecchymotic areas over both legs, no nuchal rigidity, no Kernig and no Brudzinski signs. In his lucid moments the patient complained of severe abdominal pain. The abdomen was moderately distended and very tender. It was believed that he had peritoneal irritation from petechiae and possibly some abdominal hemorrhage. Waterhouse-Friderichsen syndrome was considered at the time. Spinal tap showed 5 cells per cu. mm., sugar, and no globulin. Repeated lumbar punctures remained negative throughout the illness. A direct blood smear revealed diplococci, and a blood culture was positive for meningococci in twenty hours. The patient was given 6 Gm. of sodium sulfadiazine intravenously and at the same time 4 Gm. of sulfadiazine by mouth. In four hours the blood level was 9.7 mg. per cent and four hours later it was 24.3 mg. per cent. On March 14 he developed bilateral bronchopneumonia, as shown by x-ray. That day he went into partial shock. His blood pressure was 78/48 and we were of the opinion that he had had an adrenal hemorrhage. On March 15 his blood urea nitrogen was 47, and he developed a marked oliguria. Three citrated whole blood transfusions were given. There was gradual improvement, but he developed gangrene of the tips of four toes on each foot. These gangrenous areas gradually became demarcated and sloughed off, and the patient finally recovered.

Case 4.—C. M. J., aged 32, was admitted on March 14, 1943, with a history of "splitting" headache, malaise, vomiting, and confusion just prior to admission. Examination revealed petechiae on the

Chief of Medical Service, Station Hospital, Camp Stoneman, California.

upper abdomen, chest, and neck. There was definite nuchal rigidity but no Kernig sign. Lumbar puncture revealed cloudy fluid under pressure, 1,950 white cells per cu. mm., meningococci, no sugar, and globulin. In twelve hours 13.5 Gm. of sodium sulfadiazine were given intravenously, and the blood level was 20.9 mg. per cent. Because of severe headache, the spinal tap was repeated and a level of 14.6 mg. per cent was found in the spinal fluid. Twenty-four hours after the initial dose of sulfonamide, the patient developed frank hematuria, but the temperature was normal. However, sulfadiazine therapy was continued and a blood level of 13–15 mg. per cent was maintained. The urine gradually cleared and recovery was uneventful.

Case 5.—C. F. J., aged 43, was admitted on March 15, 1943, with a history of severe headaches for two days, followed by chills, fever, and vomiting. Examination revealed definite nuchal rigidity and a positive Kernig sign. The patient was fully conscious and alert. Spinal tap revealed a cloudy fluid containing 5,750 white cells per cu. mm., no sugar, globulin, and many meningococci. Six grams of sodium sulfadiazine were given intravenously. In sixteen hours a total of 20 Gm. (14 Gm. orally) were given and the blood level was 24.6 mg. per cent. Twenty-four hours after admission he was afebrile and asymptomatic. Recovery was uneventful.

Case 6.—W. L. S., aged 32, was admitted on March 17, 1943, in a stuporous and very restless state, with onset of severe headache and malaise about thirty hours before admission. Examination showed questionable neck rigidity but positive Kernig and Brudzinski signs. Spinal tap revealed markedly cloudy fluid, 15,000 white cells per cu. mm., globulin, and meningococci. Within six hours 10 Gm. of sodium sulfadiazine were given intravenously in three doses and a blood level of 15.3 mg. per cent was obtained. The patient developed frank hematuria, but he became afebrile in twenty-four hours and made an uneventful recovery with no further sulfonamide therapy.

Case 7.—F. J. S., aged 25, was admitted on March 25, 1943, with a history of nausea, vomiting, and headache of eighteen hours' duration. Examination at this time was entirely negative. The following morning the patient had projectile vomiting and severe headache but no neck rigidity. Spinal tap revealed cloudy fluid under pressure, a cell count of 11,500 per cu. mm., and meningococci. Six grams of sodium sulfadiazine were given intravenously. Three hours later the blood level was 12.2 mg. per cent. Three grams of sodium sulfadiazine were given intravenously every four hours for three doses. The highest level obtained was 17.3 mg. per cent. The patient became afebrile in twenty-four hours and his recovery was uneventful.

Case 8.—S. T. P., aged 22, was admitted on April 15, 1943, with a history of vomiting, severe headache, and malaise of twenty-four hours' duration. He was drowsy, had nuchal rigidity, and positive Kernig and Brudzinski signs. Lumbar puncture revealed 12,400 cells per cu. mm., and sugar, globulin, and meningococci. Six grams of sodium sulfadiazine were given intravenously, followed by 4 Gm. intravenously in four hours. The maximum blood level obtained was 22.5 mg. per cent eight hours after the initial dose. Nineteen hours after admission the patient was afebrile and asymptomatic. His recovery was uneventful.

Case 9.—J. P. P., aged 20, was admitted on April 25, 1943, with a history of infection of the upper respiratory tract and sudden onset of chills, fever, and severe diffuse headache. The patient was drowsy and had moderate nuchal rigidity, with positive Kernig and Brudzinski signs. A spinal tap revealed 102 cells per cu. mm., with the presence of sugar and globulin. No organisms were found. A second lumbar puncture twelve hours after admission showed 700 cells per cu. mm., with 98 per cent polymorphonuclears. Again no organisms were found. Six grams of sodium sulfadiazine were given intravenously on admission. Four hours later a second dose of 4 Gm. was given intravenously. The second blood level taken eight hours after the initial dose was 28 mg. per cent. In twenty-four hours the patient was afebrile and made an uneventful recovery.

Case 10.—E. P. P., aged 25, was admitted on April 26, 1943, with a history of headache and vomiting for two days. Spinal tap revealed 3,000 cells per cu. mm., meningococci, no sugar, and globulin. Six grams of sodium sulfadiazine were given intravenously together with 4 Gm. of sulfadiazine by mouth. Four hours later the blood level was 16.7 mg. per cent. Eight hours after the initial dose, the blood level was 20 mg. per cent. One gram of sulfadiazine was then given by mouth every four hours. In twenty-four hours, the patient was afebrile and remained so for six days. In the meantime the sulfadiazine was discontinued. On the seventh day he developed a temperature of 101 F. and complained of headache. A spinal tap revealed 100 cells per cu. mm., and sulfadiazine therapy by mouth was again instituted. His temperature became normal in twenty-four hours and he made an uneventful recovery.

Case 11.—D. E. G., aged 31, was admitted on April 26, 1943, with a history of chills, fever, and headache of one day's duration. The patient was drowsy and confused. He had nuchal rigidity, a positive Kernig sign, and generalized purpuric rash. Lumbar puncture revealed 18,000 cells per cu. mm. with 98 per cent polymorphonuclears, and meningogocci, and was negative for sugar and positive for globulin. One dose of 10 Gm. of sodium sulfadiazine was given intravenously. Four hours later the blood level was 21 mg. per cent. Eight hours after admission he was afebrile and his sensorium was clear. He made an uneventful recovery with only the 10 Gm. of sodium sulfadiazine given on admission.

Case 12.—G. L. B., aged 37, was admitted on April 28, 1943, with a history of severe occipital headache, chills, fever, nausea, and vomiting of one day's duration. There was a purpuric rash all over the body, nuchal rigidity, and positive Kernig and Brudzinski signs. Lumbar puncture revealed 270 cells per cu. mm., 98 per cent polymorphonuclears, and meningococci. It was negative for sugar and positive for globulin. A single dose of 10 Gm. of sodium sulfadiazine was given intravenously on admission. Four hours later the blood level was 41.6 mg. per cent. Eight hours after the initial dose the blood level was 34 mg. per cent, and another blood level taken twenty-four hours after the first dose revealed 10.2 mg. per cent. The patient had not been given any additional sulfadiazine. Because of severe headache, lumbar puncture was repeated twenty-four hours after admission. The spinal fluid showed 19,600 cells per cu. mm., with 99 per cent polymorphonuclears, and many meningococci. It was then that the drug was resumed. He was given 2 Gm. of sulfadiazine every four hours by mouth. Forty-eight hours after admission he was afebrile and made an uneventful recovery.

Comment

Each patient had a blood culture and blood count on admission. The total number of white cells per cubic millimeter ranged from 20,000 to 40,000, with 80 to 90 per cent polymorphonuclears and a marked shift to the left. Blood counts were repeated at frequent intervals. No blood complications were encountered.

All urine passed by each patient was examined. If the patient failed to void within any six-hour period, catheterization was performed to rule out anuria. Fluid intake and output were charted. Every patient received intravenous infusions of 5 per cent glucose and/or normal saline.

All patients on admission had a temperature of 103 to 104 F. Seven of the 12 patients became afebrile within twenty-four hours after sulfadiazine therapy was instituted. Of the remaining 5 patients, 4 returned to normal within forty-eight hours. No controls were used; therefore we are unable to state what results might have been obtained had smaller doses been given.

The patient in Case 3 was the only one with severe complications resulting from the massive petechial hemorrhages, the bronchopneumonia, the possible adrenal hemorrhage, and the gangrene of the toes. His blood became bacteria-free in twenty-four hours. His case never developed into true meningitis and is considered a case of purpura fulminans.

The patient in Case 11 was given 10 Gm. of the drug intravenously on admission. Despite the fact that he had a spinal fluid cell count of 18,000 per cu. mm., he became afebrile in eight hours. He received no further therapy and made an uneventful recovery.

The last 2 patients, Cases 11 and 12, were both of about the same weight and height. Neither was dehydrated. Each was given an equal amount of the drug (10 Gm.) and in four hours the one showed a blood level of 21 mg. per cent, and the other 41 mg. per cent. This bears out the statement that "two patients receiving the same dose of the same drug may show widely different blood levels."[11]

It is our belief that massive doses of sulfadiazine are indicated in the treatment of meningococcus meningitis. Attention is directed to the speed with which clinical recovery took place.

Summary

1. Twelve consecutive cases of meningococcus meningitis, which were treated with sodium sulfadiazine and sulfadiazine, are reported, with rapid cure and no mortality.

2. Emphasis is placed on obtaining a blood level of about 20 mg. per cent rather than on any specific dosage.

3. Seven patients were asymptomatic and afebrile within twenty-four hours, 4 patients within forty-eight hours.

4. One patient (Case 3) had a stormy course; 2 patients showed a transitory hematuria. No other complications were encountered.

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WRITTEN EXAMINATIONS FOR CANDIDATES IN OBSTETRICSS AND GYNECOLOGY

The American Board of Obstetrics and Gynecology announces that the next written examination and review of case histories (Part I) for all candidates will be held in various cities of the United States and Canada on Saturday, February 12, 1944, at 2:00 P.M. Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held later in the year.

All applications must be in the office of the Secretary by November 15, 1943.

All candidates are now required to have been out of medical school not less than eight years, and in that time to have completed an approved one-year internship and at least three years of approved special formal training, or its equivalent, in the seven years following the intern year. This Board's requirements for internships and special training are similar to those of the American Medical Association, since the Board and the A. M. A. are at present cooperating in a survey of acceptable i stitutions. At the last Board meeting in Ma 1943, it was decided to give special credit for ce tain types of military service. All candidat must be full citizens of the United States or Canad before being eligible for admission to examination

All candidates will be required to take the Part examination, which consists of a written examin tion and the submission of twenty-five (25) cas history abstracts, and the Part II examinatio (oral-clinical and pathology examination). Th Part I examination will be arranged so that th candidate may take it at or near his place of resi dence, while the Part II examination will be hel late in May, 1944, in that city nearest to the larges group of candidates. Time and place of this ex amination will be announced later.

For further information and application blanks address Dr. Paul Titus, Secretary, 1015 Highlan Building, Pittsburgh (6), Pennsylvania.

Honor Roll

Medical Society of the State of New York

Member Physicians in the Armed Forces

Supplementary List*

The following list is the twelfth supplement to the Honor Roll published in the December 15, 1942, issue. Other supplements appeared in the January 1, January 15, February 15, March 1, March 15, April 15, June 1, July 1, August 1, September 1, and October 15 issues.—*Editor*

A

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ap Van Dorn, Miss.
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isle Barracks, Pa.
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ark Ave., New York 16, N.Y.
erg, C.
sdale, N.Y.
eld, C. (Lt.)
p San Luis Obispo, Calif.

H

ch, J. F. (Lt. Com.)
olk, Va.
, H. J.
ave St., Lockport, N.Y.

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e following names have been
ed in the Honor Roll by mis-
Dr. S. M. Bouton, Jr., 250
ar Rd., Rochester, N.Y., in
gust 1 issue; and Dr. K. F.
, 229 W. 78th St., New York
the September 1 issue.

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Terry, G. S.
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Comment

Each patient had a blood culture and blood count on admission. The total number of white cells per cubic millimeter ranged from 20,000 to 40,000, with 80 to 90 per cent polymorphonuclears and a marked shift to the left. Blood counts were repeated at frequent intervals. No blood complications were encountered.

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All patients on admission had a temperature of 103 to 104 F. Seven of the 12 patients became afebrile within twenty-four hours after sulfadiazine therapy was instituted. Of the remaining 5 patients, 4 returned to normal within forty-eight hours. No controls were used; therefore we are unable to state what results might have been obtained had smaller doses been given.

The patient in Case 3 was the only one with severe complications resulting from the massive petechial hemorrhages, the bronchopneumonia, the possible adrenal hemorrhage, and the gangrene of the toes. His blood became bacteria-free in twenty-four hours. His case never developed into true meningitis and is considered a case of purpura fulminans.

The patient in Case 11 was given 10 Gm. of the drug intravenously on admission. Despite the fact that he had a spinal fluid cell count of 18,000 per cu. mm., he became afebrile in eight hours. He received no further therapy and made an uneventful recovery.

The last 2 patients, Cases 11 and 12, were both of about the same weight and height. Neither was dehydrated. Each was given an equal amount of the drug (10 Gm.) and in four hours the one showed a blood level of 21 mg. per cent, and the other 41 mg. per cent. This bears out the statement that "two patients receiving the same dose of the same drug may show widely different blood levels."[11]

It is our belief that massive doses of sulfadiazine are indicated in the treatment of meningococcus meningitis. Attention is directed to the speed with which clinical recovery took place.

Summary

1. Twelve consecutive cases of meningococcus meningitis, which were treated with sodium sulfadiazine and sulfadiazine, are reported, with rapid cure and no mortality.

2. Emphasis is placed on obtaining a blood level of about 20 mg. per cent rather than on any specific dosage.

3. Seven patients were asymptomatic and afebrile within twenty-four hours, 4 patients within forty-eight hours.

4. One patient (Case 3) had a stormy course; 2 patients showed a transitory hematuria. No other complications were encountered.

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WRITTEN EXAMINATIONS FOR CANDIDATES IN OBSTETRICSS AND GYNECOLOGY

The American Board of Obstetrics and Gynecology announces that the next written examination and review of case histories (Part I) for all candidates will be held in various cities of the United States and Canada on Saturday, February 12, 1944, at 2:00 P.M. Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held later in the year.

All applications must be in the office of the Secretary by November 15, 1943.

All candidates are now required to have been out of medical school not less than eight years, and in that time to have completed an approved one-year internship and at least three years of approved special formal training, or its equivalent, in the seven years following the intern year. This Board's requirements for internships and special training are similar to those of the American Medical Association, since the Board and the A. M. A. are at present cooperating in a survey of acceptable institutions. At the last Board meeting in May, 1943, it was decided to give special credit for certain types of military service. All candidates must be full citizens of the United States or Canada before being eligible for admission to examinations.

All candidates will be required to take the Part I examination, which consists of a written examination and the submission of twenty-five (25) case history abstracts, and the Part II examination (oral-clinical and pathology examination). The Part I examination will be arranged so that the candidate may take it at or near his place of residence, while the Part II examination will be held late in May, 1944, in that city nearest to the largest group of candidates. Time and place of this examination will be announced later.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.



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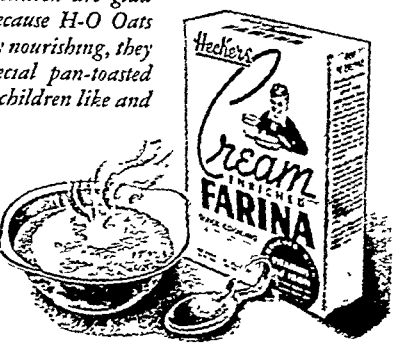
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Medicine and the War

Rehabilitation Advisory Council Appointed

APPOINTMENT of a National Rehabilitation Advisory Council was announced on October 9 by Federal Security Administrator Paul V. McNutt.

The new Council, made up of twenty outstanding leaders in training for the handicapped, will, he stated, advise the Office of Vocational Rehabilitation, recently established in the Federal Security Agency in connection with the expanded Federal-State program of rehabilitation for the handicapped. Administrator McNutt pointed out that as a wartime measure an additional concern is to enable handicapped men and women to work in war industry.

Approximately a million and a half persons may be eligible for rehabilitation under the program, according to an estimate presented to the Advisory Council at its first meeting, held on October 8. Rehabilitation programs to which the Federal Government makes grants are already in operation in all the States, Hawaii, Alaska, and Puerto Rico; it is anticipated that participation in the expanded program will be equally nation-wide.

At the first meeting of the Council, Mr. McNutt stressed the importance of developing more effective means of meeting the needs of the physically handicapped, and in particular of building up a good program for physical restoration in cases of remediable defects.

"This is a decided expansion as far as Federal support is concerned, and in most States will represent a substantial change in emphasis," he said. "The program should go far toward helping the handicapped to become self-supporting—taxpayers instead of tax-consumers—and to prepare themselves for taking part in the nation's war effort."

The Council discussed basic plans, policies, and regulations implementing the new program. These proposals were presented by Michael J. Shortley, Director of the Office of Vocational Rehabilitation, and John A. Kratz, Associate Director.

The current expansion in this field is the result of the Barden-LaFollette Act, passed in July. This law, which substantially strengthens and extends earlier legislation, provides Federal aid to State-administered vocational rehabilitation programs for remedial treatment of physical handicaps, as well as for job training. The Federal contribution to States with approved plans covers State administrative expenses for the program, the entire cost of rehabilitation in the case of certain war-disabled civilians, and half the cost for other persons. State Boards of Vocational Education are designated as the agencies for the administration, supervision, and control of State programs for vocational rehabilitation, with the exception that administration of rehabilitation for the adult blind is committed to State Blind Commissions or similar agencies when such bodies have the necessary authority under State law.

This program for the rehabilitation of civilians serves to round out Federal provisions for the handicapped, providing care for those not included in the Veterans Administration program, recently authorized by Congress, for vocational rehabilitation at Federal expense for discharged veterans of the present war who have handicaps incurred while in service.

Members of the Rehabilitation Advisory Council include representatives of various fields—corrective surgery, physiotherapy, occupational therapy, psychiatry, guidance and welfare agencies, education, labor, management—State Directors of Vocational Rehabilitation, and agencies concerned with such conditions as blindness, tuberculosis, and hearing defects. They are: Claud M. Andrews, president, National Rehabilitation Association, Tallahassee, Fla.; Dr. Roma Cheek, executive secretary, Commission for the Blind, Raleigh, N.C.; Dr. A. W. Dent, president, Dillard University, New Orleans, La.; Dr. Kendall Emerson, managing director, National Tuberculosis Association, New York, N.Y.; W. F. Faulkes, chairman, State Rehabilitation Advisory Council, Madison, Wis.; Dr. M. E. Frampton, New York Institute for the Instruction of the Blind, New York, N.Y.; Miss Bell Greve, executive secretary, Cleveland Association for the Crippled and Disabled, Cleveland, Ohio; Stanwood L. Hanson, assistant vice-president, Liberty Mutual Insurance Company, Boston, Mass.; Jay Hormel, president, George A. Hormel and Company, Austin, Minn.; E. Jay Howenstine, executive secretary, National Society for Crippled Children, Elyria, Ohio; Monsignor John O'Grady, secretary, National Conference of Catholic Charities, Washington, D.C.; Howard Russell, director, American Public Welfare Association, Chicago, Ill.; Colonel John N. Smith, Jr., director, Institute for the Crippled and Disabled, New York, N.Y.; Dr. George S. Stevenson, Council on Rehabilitation, American Psychiatric Association, New York, N.Y.; Dr. George D. Stoddard, State Commissioner of Education, Albany, N.Y.; Miss Marjorie Taylor, first vice-president, National Occupational Therapy Association, Curative Workshop, Milwaukee, Wis.; Frank G. Thompson, director, State Department of Registration and Education, Springfield, Ill.; Dr. Philip Wilson, New York Society for Relief of the Ruptured and Crippled, New York, N.Y.; Miss Catherine Worthingham, president, American Association of Physiotherapy, Leland Stanford University, Palo Alto, Calif.; and Miss Betty Wright, American Society for the Hard of Hearing, Washington, D.C.

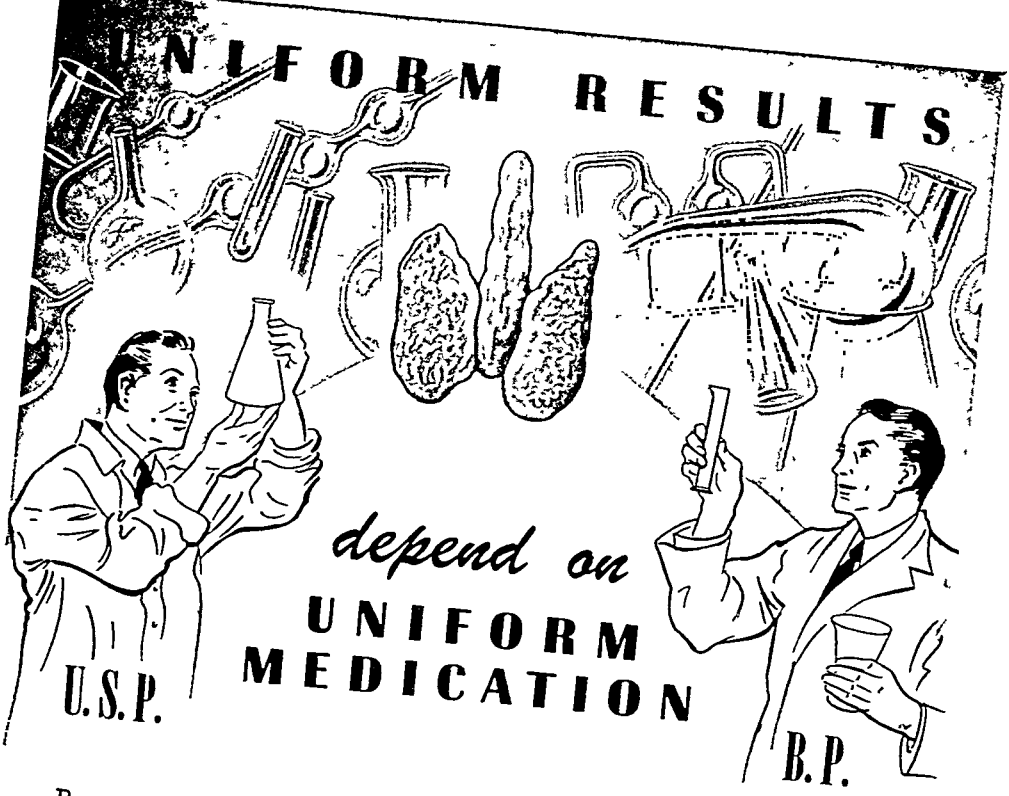
Services Require 7,000 More Doctors

TO INSURE "even minimal care" of men wounded in battle to the end of the year, the Army and Navy require an additional 7,000 doctors and 600 dentists, according to a report on medical personnel in the armed services.

Despite every effort to keep requirements to an absolute minimum, both services now lack an adequate supply of civilian physicians.

Adequate preparation for battle emergencies results, at times, in an apparent oversupply of physicians to the armed services, but this is ex-

[Continued on page 2216]



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[Continued from page 2214]

plained by Maj. Gen. Norman Kirk, Army Surgeon General, as a necessity due to the exigencies of war.

Because, as pointed out in the report, reserves must be on hand for emergencies or for expanded operations, there must also be a preorganization of hospitals against the need to set up such establishments on foreign soil.

Many newly commissioned medical officers get a nine-week indoctrination course in tropical and naval medicine subjects which are not adequately covered in civilian medical institutions. Consideration also is given to the diseases common in war regions.

On completion of this course doctors are assigned to general duty or may volunteer for work such as in aviation or submarines or with paratroopers.

Medical Education Facilities Meet Wartime Needs

THAT the medical education facilities of the United States are fully meeting the wartime demands being placed on them is revealed in the forty-third annual presentation of educational data by the Council on Medical Education and Hospitals of the American Medical Association, published in the August 14 issue of the *Journal* of the Association.

The report says that the accelerated medical education program and increased enrollments in medical schools "are now producing excellently trained medical graduates for military and civilian needs in numbers far exceeding the production of doctors at any other time in the history of this country. . . . ."

Not only are the medical schools of the nation properly handling the increased enrollments, but improvements in curriculum also are being inaugurated. "Practically all schools," the report says, "report that, while the basic medical curriculum remains essentially unchanged, subjects of war significance are being stressed or have been added. The most commonly mentioned subjects in this category are tropical medicine and parasitology, first aid, shock and blood substitutes, burns and war wounds, venereal diseases, aviation physiology and medicine, industrial medicine, public health, chemical warfare, military medicine, and chemotherapy.

"Two generalizations may be made from scanning this list: First, the subjects are not limited to clinical topics of a purely 'practical' nature but involve as well material of basic scientific importance. Second, many of these subjects will continue to be of great medical importance after the war, so that these wartime additions to the curriculum are not simply necessary educational concessions to an emergency but will probably continue to justify their inclusion in our educational programs after the war. . . . ."

The increased demands on medical schools are being met by faculties seriously depleted by the numbers who have entered the armed forces. Up to July 1, 1943, the seventy-six medical schools and schools of basic medical sciences in the United States had contributed 5,637 faculty members to the armed forces.

It is pointed out that at present virtually all medical schools in the United States are operating on an accelerated program, admitting a new class approximately every nine months and condensing the traditional four academic years of the medical curriculum into three calendar years by omitting summer vacations, without a reduction in total classroom, laboratory, and clinic hours. The report states that there are now sixty-six approved medical schools in the United States. Between July 1, 1942, and the opening of the first academic session commencing in 1943, varying in different schools anywhere from January to July, there were 5,223 graduates. To this figure may be added the estimated 10,889 students who will graduate between the time of the opening of the first academic session in 1943 and January, 1945. This will be an average of 6,445 graduates per calendar year, which far exceeds the number ever graduated from schools in the United States, even at the time when one hundred and sixty schools were operating, in 1905. "This figure," the report says, "is a conservative expression of the probabilities, since there will probably be an additional 4,500 graduates in the first six months after January 1, 1945, totaling over 20,000 graduates in a period of exactly three years from July 1, 1942, to July 1, 1945, or nearly 7,000 a year. . . . ."

Throughout the country freshman classes will enter one or more medical schools during every month from September, 1943, to January, 1945, with the sole exception of the month of December, 1944. Dates of graduation will also be staggered throughout these months, with most of the students graduating in the months of December, 1943, and September, 1944, although some students will complete their work and be available for internships in every month of this period with the exception the months of September, 1943, May, and November, 1944, and January, 1945. In this connection the report points out that students in all states of the Union as well as the District of Columbia, Alaska, Hawaii, and Puerto Rico have now adjusted their licensure legislation or practices so that graduates under the accelerated medical program will be eligible for admission to licensure, at least for the duration of the emergency.

In the seventy-six approved medical schools and schools of the basic medical sciences in the United States there were in the academic year ending with the admission of the first class in 1943,22,631 students studying medicine, an increase of 600, or 2.7 per cent above the preceding academic session. The enrollment increase in Canadian schools was 2.0 per cent. In addition there were 566 fifth-year students in schools of the United States, plus 403 fifth-year and 219 sixth-year students in Canada.

Regarding internships in civilian hospitals approved for intern training, the report points out that in January, 1943, these institutions could accommodate 7,959 interns, whereas only 5,567 actually were on duty, a shortage of 2,392 interns. It is emphasized that in the face of this shortage it is becoming increasingly important that hospitals cooperate in maintaining an equitable distribution of interns by limiting appointments to actual minimum needs. A shortage is also reported in the numbers available for residencies, assistant residencies, and fellowships.

In an editorial on medical education in wartime, appearing in the same issue of the *Journal*, it is pointed out that "It is encouraging to note that the stress of the accelerated program has not pre-

[Continued on page 2218]

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[Continued from page 2216]

vented depleted faculties from a critical scrutiny of past performance and planning for means to improve the presentation of that most complex of subjects, man, in health and in disease.

"Problems of postwar adjustments in medicine deserve inclusion in the undergraduate curriculum of more schools. How, if at all, is the practice of medicine likely to be different from that of the past? How may we arrive at a sound evaluation of the innumerable plans and proposed laws for improved medical care projected by lay and medical groups? These and related questions are being asked by medical students everywhere. A knowledge of the facts and analysis of the factors, forces, and mechanisms at work, and the application of the searching scientific spirit which is the foundation of medical education, may lead more promptly to workable and acceptable methods."

In another editorial on premedical education, the *Journal* says:

"Acceleration in medical schools does not involve any basic change except the elimination of the long summer vacations. A significant increase in weekly work by the student is not required. The premedical programs, however, shorten the program mainly by a weekly increase in the quantity of work carried by the student. . . . .

"Whether or not students will be able to carry this heavy load remains to be seen. These students will, however, be free from financial worries and the necessity for outside employment. They will receive medical care, and more attention will be paid to the students' physical condition.

"The results of this experiment in concentrated premedical education will be watched with interest by all who are concerned with preprofessional education in every field, since it may offer a solution of the problem of reducing the long years of training required by the learned and scientific professions. . . . ."

Discussing "The Supply of Physicians," the *Journal* says that "More than 4,000 seniors who entered the accelerated medical education program over a year ago are now well into their intern year and will complete that training before March 31, 1944. They will thus become available for military and civilian practice three months earlier than in normal times. Even half of these, should only that small proportion be commissioned, can care medically for over 300,000 troops. If this number of men is thereby enabled to enter active service three months early, before April of next year, the accelerated program will have justified itself in supplying the men required. . . . ."

Postwar medical educational facilities are not being ignored. The *Journal* says that "Recognizing that large numbers of physicians will be seeking advanced training immediately after the war, the Council on Medical Education and Hospitals is making a careful study of the educational facilities in the graduate and postgraduate fields. A preliminary survey has already been instituted to determine what institutions and agencies will be able to expand their regular educational activities to meet additional postwar needs. . . . . The large number of physicians who return to civilian life will likewise find that the medical profession, the schools, and the hospitals stand ready to meet the educational needs of the postwar period."—*A.M.A. News.*

American-Soviet Scientific Congress in New York City

PROMINENT scientists participated in a scientific congress on the occasion of the tenth anniversary of American-Soviet diplomatic relations, which was celebrated with a three-day meeting on November 6, 7, and 8 at the Hotel New Yorker and Madison Square Garden under the auspices of the National Council of American-Soviet Friendship.

The scientific meetings opened in New York City, November 6, with a large public session on planning and postwar reconstruction in the U.S.A. and the U.S.S.R. On Sunday, November 7, panels were held on Soviet science and technology and on public health and wartime medicine in the U.S.S.R., the latter panel under the auspices of the American-Soviet Medical Society.

The scientific congress, sponsored by leading scientists throughout the country, had as its honorary chairmen: Prof. Walter B. Cannon, of Harvard University; Prof. Ernest O. Lawrence, of the University of California, Nobel Prize winner and developer of the cyclotron; and Prof. Gilbert N. Lewis, dean of the College of Chemistry at the University of California.

Among those who accepted invitations to speak were Prof. L. C. Dunn, executive officer of the Zoology Department at Columbia University, who addressed the Science and Technology panel on "Russian Research in the Biological Sciences"; Dr. C. E. A. Winslow, professor of public health at Yale University, who addressed the medical panel on "Public Health in the Soviet Union," and Dr. V. V. Lebedenko, Russian Red Cross Representative in the United States, who addressed the medical panel on "Russian Advances in Military Medicine." Dr. Harold C. Urey, executive officer of the Department of Chemistry, Columbia University, Nobel Prize winner and discoverer of the heavy hydrogen atom, was chairman of the panel on Soviet science and technology, at which Sir Hubert Wilkins, the explorer, spoke on "Soviet Exploration and Geography."

Sponsors of the Scientific Congress included Prof. Albert Einstein, Institute of Advanced Study; Dr. C. J. Davisson, Bell Telephone Laboratories; Prof. C. E. A. Winslow; Dr. Dean Burk, National Cancer Institute; Dr. Irving Langmuir, General Electric Co.; Dr. Theodore Shedlovsky, Rockefeller Institute for Medical Research; Prof. G. H. Whipple, dean of the University of Rochester School of Medicine; Dr. Carl O. Dunbar, director of Peabody Museum of Yale University; Dr. V. K. Zworykin, R.C.A. Laboratories; Prof. Ralph Linton, anthropologist, Columbia University; Dr. Ernst P. Boas; Prof. G. H. Shull, professor of botany, Princeton University; Dr. J. H. Northrop, Rockefeller Institute for Medical Research; Prof. S. A. Waksman, professor of microbiology, Rutgers University; Dr. W. M. Stanley, Rockefeller Institute for Medical Research; Dr. Hugh Cabot; Dr. Max Thorek; Dr. G. K. Strode, International Health Division Rockefeller Foundation; Dr. Ernest L. Stebbins, Commissioner of Health, New York City; Dr. H. E. Sigerist, Johns Hopkins University; Prof. Edward Kasner, professor of mathematics, Columbia University; Dr. Karl T. Compton, president, M.I.T.; Prof. Edwin G. Conklin; Prof. L. C. Dunn; Dr. Albert W. Hull, General Electric Co.; Prof. K. F. Mather, professor of geology, Harvard University; Prof. M. F. Ashley Montagu, professor of anatomy, Hahnemann

[Continued on page 2220]

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[Continued from page 2218]

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French Red Cross Receives Surgical Equipment

TO HELP rehabilitate wounded French soldiers and to relieve the shortage of critical medical supplies, the Medical and Surgical Relief Committee of America has again donated surgical equipment to the French Red Cross in Algiers, North Africa, according to an announcement by Dr. Joseph Peter Hoguet, medical director of the Committee. Earmarked for distribution to French military hospitals, the equipment, now on its way to Algiers, is valued at $1,119.

This donation makes a total of $8,126 worth of medical and surgical equipment sent by the Committee to North Africa during the past five months to meet the needs of depleted medical depots, field stations, and hospitals, Dr. Hoguet said. The latest shipment consists of one basic surgical instrument set, four supplemental instrument sets for eye injuries, and two supplemental instrument sets for fractures and orthopaedic operations.

"15,000 French soldiers were wounded or killed in the fighting that led up to the Nazi surrender in Tunisia," declared Dr. Hoguet. "The Committee gladly donates these instrument sets to help return wounded Frenchmen to the fighting front—where they so impatiently wish to be."

Past shipments of equipment have included forty-three operating and medical field kits, a complete x-ray unit, and quantities of drugs and other supplies. However, many more shipments of instruments and drugs are needed.

In answer to an appeal issued by the Committee last August to help re-equip the French Medical Corps and its hospitals, the Medical and Surgical Relief Committee received many generous donations.

"The Committee is grateful for this support. All the funds donated to the Committee will be used to save the lives of those men who are fighting to build the France of tomorrow," said Dr. Hoguet.

Conducted for over three years by a nation-wide group of physicians and surgeons, the Medical and Surgical Relief Committee is a philanthropic organization dedicated to a program of medical relief for the civilian and armed forces of the United Nations. To date, more than $572,000 worth of medical and surgical equipment has been distributed by the Committee among military and maritime units of the United States and her Allies, to warzone hospitals, needy welfare agencies, and civilian defense stations throughout the free world.

From the Meeting of Military Surgeons . . .

THE privations of the people of Malta during their long ordeal by fire and siege have led to the discovery of a hitherto unknown important food factor, possibly a vitamin, which is necessary for normal vision in the dark, it was revealed at the annual meeting of the Association of Military Surgeons of the United States by Air Marshal Sir Harold E. Whittingham, director general of the Royal Air Force Medical Services and honorary physician to the King.

The new "night-vision vitamin" has been discovered in fresh fruits, particularly citrus fruits, such as oranges, lemons, and limes, Sir Harold said.

The discovery was made, he stated, by Squadron Leader Thomas Macrae, nutritionist, and Wing Commander Keith Lyle, ophthalmologist, who found that the people at Malta had poor night vision. When the subjects tested were brought to the mainland and fed orange juice their night vision was restored to normal in about a week, Sir Harold reported.

Similar studies, he added, were carried out in Tunisia, where it was found that the American and Australian troops had better night vision than the British airmen. The supply of fruit juices to the British aviators resulted in the restoration of their night vision to normal in a few days.

* * *

Secret new drugs against malaria, described as "an enemy more dangerous than the Japanese," are now being tested in the field, with results expected to bring about "improvements of inestimable value in the therapy of malaria."

This was reported by Brig. Gen. Charles Hillman, chief of the Professional Service Office of the Army Surgeon General, in a symposium on war medicine.

General Hillman also reported field experiments to develop more effective administration of the standard antimalarial drugs. He added that among tropical diseases "skin infections rank next to malaria as a cause of noneffectiveness in the Pacific theaters of war."

[Continued on page 2222]



IN THE PROBLEM OF *Dietary Management* UNDER WAR-TIME RESTRICTIONS

The dietary adjustments so frequently required in therapy, may become increasingly difficult under wartime food restrictions. The high-protein: high-vitamin diet called for in many conditions may not be easily accomplished under rationing, with protein foods available in limited amounts.

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	Dry Ovaltine	Ovaltine with milk*
COPPER	0.5 mg.	0.5 mg.
VITAMIN A	1500 U.S.P.U.	2953 U.S.P.U.
VITAMIN D	405 U.S.P.U.	432 U.S.P.U.
VITAMIN B_1	300 U.S.P.U.	432 U.S.P.U.
RIBOFLAVIN	0.25 mg.	1.28 mg.
NIACIN	4.95 mg.	7.1 mg.

*Each serving made with 8 oz. milk; based on average reported values for milk.

[Continued from page 2220]

A new type of dressing for the quick and safe control of external hemorrhages from wounds on any part of the body, which is said to eliminate the need for the time-honored tourniquet and promises the saving of many lives among American and Allied fighting men was demonstrated at the symposium on war medicine.

The new dressing, said to be easily applied by persons with limited training, was developed after extensive research by Col. John L. Gallagher of the Army Medical Corps Station Hospital of Lincoln, Nebraska.

• • •

The Navy Medical Corps demonstrated a new battle dress which gives a man four types of protection—against flash burns from explosions, which have caused 30 per cent of naval casualties, against blast injuries, against small fragments and splinters, and against drowning.

Other new developments demonstrated by the Navy included a new protective cream which protects the body against burns from flashes of 1,000 degrees centigrade and the most efficient chemical yet devised for converting sea water into palatable drinking water.

• • •

First clews to Axis secret weapons are likely to show in the wounds they inflict, the military doctors were told. They were advised to watch for new types of wounds and to report them promptly, in a paper delivered by Dr. J. F. Fulton, professor of physiology at Yale University Medical School.

Wounds, he said, correlate with the weapons that cause them. The specific new wounds that military doctors are looking for are military secrets. In general, burns, tearing effects, and a number of other conditions immediately apparent to a skilled doctor are among the telltale signs.

If poison gases are used, the injury will show what kind of gas, and it may also reveal the introduction of new alkaloid poisons, thus leading quickly to protective measures.

Dr. Fulton announced a discovery about air bends and chokes, which are similar to a deep-sea diver's troubles but affect aviators flying above 20,000 feet. In the air this crippling pain is brought on more rapidly by exercise, a discovery credited by Dr. Fulton to Dr. Eugene Ferris and Dr. M. A. Blankenhorn. It can be brought on even in a single arm, leg, or joint if that member is worked too hard. The chokes are a strangling cough due to bubbles in the blood.

• • •

Admiral William D. Leahy, personal Chief of Staff to President Roosevelt, said that the South Pacific Air Transport Command had flown 15,000 wounded and sick men back from the front lines to evacuation hospitals on islands to the rear and that despite attacks "not one plane was lost by enemy action."

"Among all these 15,000 patients the number of deaths that occurred in flight can be counted on your fingers," he said. "In this one area alone there are 15,000 reasons why aerial evacuation is safe and practicable."

Lt. Col. Richard L. Meiling reported that 125,000 men, wounded or sick, have been flown from American combat areas to hospitals in the last twenty months; that in September, 1,015 men were flown from battles all over the world all the way home to base hospitals in the United States, and that in North Africa and Sicily the 12th Air Force flew 25,000 wounded without a single accident, and with only one death en route.

• • •

Air ambulances to carry ninety persons will soon be a reality, the surgeons were told by Brig. Gen. David N. W. Grant, Army air surgeon, and Lt. Col. W. Randolph Lovelace, acting chief of the Army aero-medical laboratory, Wright Field, Dayton, Ohio, where he is working on the development of oxygen masks and on high-altitude research.

As a result of American ingenuity, General Grant asserted, it is not difficult to visualize air ambulances that would carry 300 to 400 patients.

• • •

Dr. Frank Lahey, national chairman of the Procurement and Assignment Service for Medical Services for the Armed Forces, informed the meeting that the bottom of the barrel had been reached in the procurement of physicians for the armed forces and that the Army now had increasing difficulty in persuading the remaining civilian physicians to apply for commissions.

He warned that unless civilian physicians under 38 years of age applied for commissions they would be drafted as privates, as a few already had been.

He added that if the difficulty continued the War Department might find it necessary to raise the age limit of acceptance for physicians from 38 to 45.

Of the 7,300 physicians now graduated annually from medical schools, Dr. Lahey said, civilians would get fewer than 700 until 1945, when an increase to 1,500 was hoped for, but because of deaths and for other reasons the net annual deficit would be 1,500.

• • •

Lt. Col. Thomas T. Mackie, director of the Division of Parasitology and Tropical Medicine at the Army Medical Center, branded as false enemy propaganda rumors that atabrine, the synthetic antimalaria drug, is toxic.

"Atabrine does discolor the skin, turning it yellow in some cases, because it is made from a yellow dye," he explained. "But it has no toxic effect."

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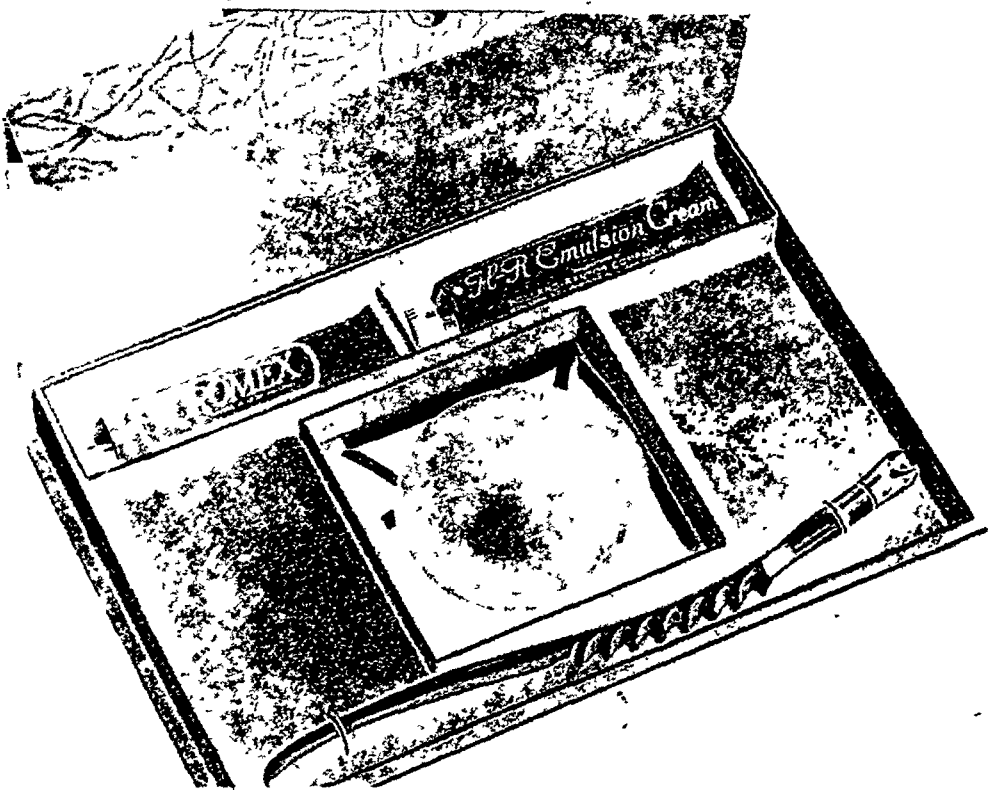
Lt. Gen. Sir Alexander Hood, director general of the Army Medical Service of Great Britain, was one of the main speakers.

"One of the successes of this war," General Hood stated, "has been the use of air transport to carry medical units and equipment to areas where they are urgently required, to enable medical personnel and their equipment to drop with paratroops or to land with glider-borne forces, and to evacuate casualties to base hospitals in comfort in hours instead of days in first-class condition.

"The British medical services have provided paratroop medical units which have been in action in North Africa and Sicily and air-borne medical

[Continued on page 2224]

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Each Unit Contains...

KOROMEX DIAPHRAGM—Widely accepted as the outstanding diaphragm in use today. Durable. GUARANTEED FOR 2 YEARS.

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* *Price of Koromex Set Complete is only that of the Koromex Diaphragm and Koromex Trip Release Introducer*

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[Continued from page 2222]

units which have also been in action in Sicily. In close cooperation with the Royal Air Force Medical Services we have developed a system of air evacuation which has proved highly successful.

"Some of our glider-borne medical units used in the invasion of Sicily landed in the water, swam ashore, and got on with their work."

• • •

Surgeon General of the Army Norman T. Kirk read a letter from Lt. Gen. Mark W. Clark, commanding general of the Fifth Army, in which he expressed "the highest commendation for the wonderfully fine work performed by the medical units of this (the Fifth) Army."

"Many wounded officers and men, who will eventually be restored to full health, would have died but for the effective work of the Medical Corps," General Clark wrote.

One medical battalion, he told Dr. Kirk, "has distinguished itself on the beaches under heavy fire early in the operation. I recommend that the unit be cited for its gallant work under terrible conditions."

"Our men in the armed forces," Surgeon General Kirk stated, "received the best service that modern medicine can give them. Deaths after treatment have averaged les than 2½ per cent. This figure represents the lowest rate in the history of all wars."

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Surgeon General Thomas Parran of the U.S. Public Health Service discussed the possibility that the Public Health Service might have to commission physicians and dentists and assign them to industrial communities badly in need of medical services.

"Efforts to maintain at least a minimum ratio of effective practicing physicians in the expanded war industrial centers have not succeeded," Dr. Parran stated.

"It is estimated that a total of 600 doctors and dentists will be needed in critical areas before another year is out. In fact, reports to the Public Health Service and the Procurement and Assignment Service show that 213 communities already face the winter with dangerously depleted medical facilities. It is estimated that these localities need some 300 doctors and 50 dentists.

"In the immediate future some plan must be implemented whereby essential medical and dental services can be maintained in these communities. In the meantime, a major war activity of the Public Health Service continues to be bolstering the local health services in critical areas."

• • •

Col. Lucius A. Salisbury, Medical Corps, New York National Guard, who resides at Scarsdale, New York, was elected president of the association at the concluding session. Other officers elected were: Assistant Surgeon General Warren F. Draper, Public Health Service, Washington, first vice-president; Col. Edgar Erskine Hume, Army Medical Corps, second vice-president; Col. Irvin Abell, Army Medical Reserve, third vice-president; Dr. Martin J. Cooley, Veterans Administration, fourth vice-president; and Capt. Robert E. Duncan, executive officer, Naval Hospital, Bethesda, Maryland, fifth vice-president.

• • •

Honorary awards were presented as follows:

Founders Medal—Rear Admiral Richard H. Laning and Capt. Joseph A. Biello of the Navy Medical Corps; Gorgas Award—Dr. Hugh S. Cumming, former Surgeon General of the United States Public Health Service. Wellcome Award—Capt. Louis H. Roddis of the Navy Medical Corps.

Twenty-seven representatives of fifteen Allied countries were elected honorary members of the association and each received the association's medal. They included six from Canada, five from Great Britain, two each from China, Norway, and Peru, and one each from Australia, Cuba, Czechoslovakia, Greece, Iran, the Netherlands, Nicaragua, Uruguay, Venezuela, and Yugoslavia.

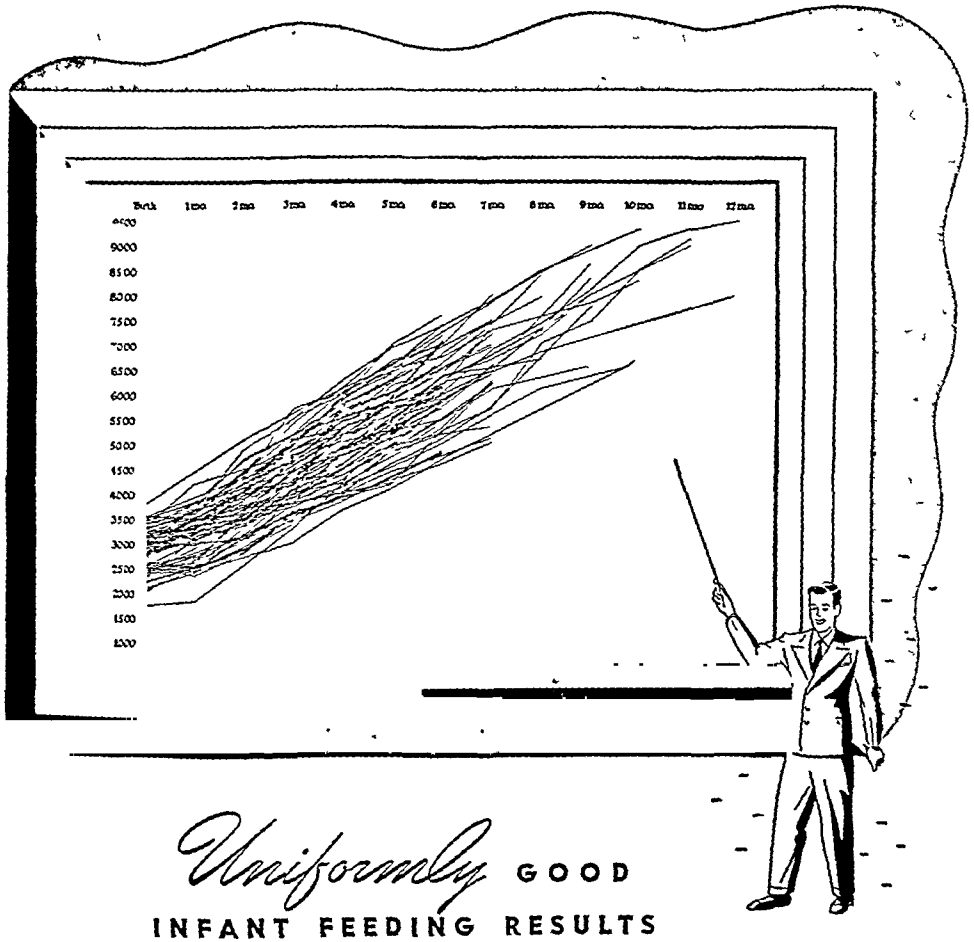
Those from Great Britain were Lt. Gen. Sir Alexander Hood, director general, Army Medical Services; Maj. Gen. C. Max Page, Air Marshal; Sir Harold E. Whittingham, honorary physician to the King and director general of the Royal Air Force Medical Services; Air Commodore Stanford Cade, consultant in surgery for the RAF; and Col. Frank S. Gillespie, liaison officer, Medical Field Service School, Carlisle Barracks, Pennsylvania.

Enlisted WACS May Become Physical Therapy Aides

THE War Department announced in September that qualified enlisted members of the Women's Army Corps will be given an opportunity to become physical therapy aides, with the relative rank of second lieutenant, serving in the Medical Department of the Army of the United States. The training courses in physical therapy began in October, under the direction of the Surgeon General, who will select the WAC personnel to be trained. On successful completion of the study and three months' practice, the Wacs will be discharged from the Women's Army Corps and will be appointed as physical therapy aides. To be eligible for this course, applicants must be under 44 years of age, must have completed the WAC basic training, and must have a degree in physical education or two years of college study emphasizing the biologic sciences.

The successful applicants will receive six months of training in physical therapy in classes at universities and hospitals. On completion of those studies they will be assigned to selected Army hospitals for practical experience in the treatment of wounded soldiers.

An "industrial consumer" to whom a certificate is issued for "industrial consumption" of rationed fats and oils, may, of course, use it only to acquire the foods for which application was made and may use those foods only for the purpose for which the application was granted.



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A powdered, modified milk product especially prepared for infant feeding, made from tuberculin tested cow's milk (casein modified) from which part of the butter fat is removed and to which has been added lactose, olive oil, cocoanut oil, corn oil and cod liver oil concentrate.



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Woman's Auxiliary

To the Medical Society of the State of New York

Executive Board Meeting

THE fall Executive Board Meeting was held October 4 and 5 at Scotia and Schenectady. From all parts of New York State chairmen and county presidents journeyed to Scotia.

Mrs. F. Leslie Sullivan, State President, was hostess to the visiting group. A social hour at Mrs. Sullivan's home preceded a dinner served at the Reformed Church, Scotia. After dinner Mrs. James Blake, Schenectady County president, welcomed the visiting board members to Schenectady County. Mrs. A. Grussner presented Miss Pauline Van Aller, principal of the Howe School in Schenectady. Miss Van Aller talked about old glass, showing many beautiful pieces from her collection.

After a pleasant afternoon and evening spent in greeting old friends and new, the visiting members were overnight guests of the Schenectady County Auxiliary members.

On Tuesday the business meeting was held at the Mohawk Golf Club, Schenectady. Mrs. F. Leslie Sullivan presided very graciously, opening the meeting with the following lines:

"We live in deeds, not years; in thoughts, not breath;
In feelings, not in figures on a dial.
We should count time by heart throbs. He most lives
Who thinks most, feels the noblest, acts the best."

Thirty-seven members were present. All reports of State chairmen and county presidents were given. Plans for the year ahead were formulated.

Many and varied war activities are to be carried on. A new War Service Chairman, Mrs. J. H. Ranney, was added to the Board. Mrs. L. H. Kice, National Legislation Chairman, outlined and gave interesting facts about the Wagner-Murray-Dingell Bill for Social Security.

Attention! Every Auxiliary member—become acquainted with this bill. This issue must be decided by the people, the voters of the United States. Make your decision, talk to your neighbors about it. Talk or write to your Senators and Representatives.

Mrs. A. Madden, State Legislative Chairman, also impressed upon the group the importance of legislation.

Dr. Charles Rourke and Dr. James Blake were guests at luncheon. It was a privilege to have these busy men take time to speak to the Auxiliary members.

The meeting reconvened at 1:30 P.M. The board meeting was unusually interesting, with a most enthusiastic group of women. The reports prove that doctors' wives are very active in every community.

The board members will long remember the pleasant and profitable board meeting held October 4 and 5, 1943, in Schenectady.

Study Legislation.
Subscribe to the *Bulletin*.
Subscribe to *Hygeia*.
Read the *Bulletin*.
Read the A. M. A. *Journal*.
Read the *New York State Journal*.

Keep the Home Front Safe.

County News

Albany. A meeting of the executive board was held at the home of the president, Mrs. James S. Lyons.

Columbia. The first fall meeting was held in the Nurses' Home of the Hudson City Hospital. Miss Marry Van Ness, R.N., director of the School of Nursing, gave a brief résumé of facts about the Local Nursing Council for War Service, explaining the object of the council. She then gave an interesting talk on the Cadet Nurse Corps, telling of the benefits and the requirements, and stating that it was the expectation that a class would shortly be organized. Miss Van Ness felt that the members of the auxiliary could give valuable aid in nurse recruitment.

INDUSTRIAL FATIGUE IN TUBERCULOSIS

There is no little discussion in current publications regarding what appears to be an increase in the incidence of tuberculosis, and the cause for this occasions much comment. While we are in no sense an authority on the subject, yet it occurs to us that several factors might be considered. One of these is industrial fatigue. Many employees seem able to cope with the additional work they are doing as compared to former years, without detriment to their health, while others complain of lassitude and lack of ability to carry on, after hours, as they used to do. Then there is the mental stress; we are inclined to credit the vast majority of war workers with a determination to do their very best and to give all they have in the furtherance of the war program. It also might be taken into consideration that dietary changes, some of them forced by the various rationings, often will break down the resistance of the individual. Scores of workers have told us that the shortage of the better qualities of meat seems to have affected them. Now, if we are to add butter, milk, and cheese, together with several other hitherto-regarded dietary essentials to the list of prescribed foods, we might well indeed give more than cursory attention to the matter. Physicians will do well to give due regard to loss of weight, lassitude, and various other symptoms in patients engaged in wartime employment—ever being on the lookout for incipient tuberculosis.—*Editorial, J. Indiana State, M. A.*

in - Therapeutic Potencies

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50,000 U.S.P. Units of Vitamin D obtained from activated ergosterol (Hebo Process) in cotton seed oil. Each ampul contains a sufficient amount to permit withdrawal and use of 1 cc.

12 per package — $2.90

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200,000 U.S.P. Units of Vitamin D obtained from activated ergosterol (Hebo Process) in cotton seed oil. Each ampul contains a sufficient amount to permit withdrawal and use of 1 cc.

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higher potency HI-DERATOL capsules
(BREWER)

200,000 U.S.P. Units of Vitamin D obtained from activated ergosterol (Hebo Process) in a pure, edible vegetable oil. Sold on prescription only.

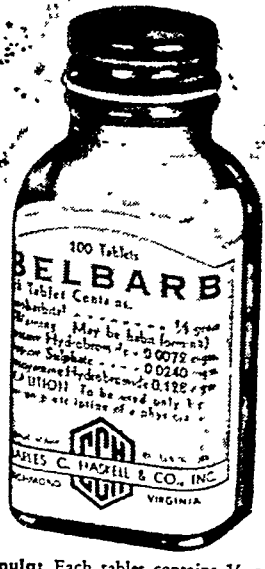
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Formula: Each tablet contains ¼ grain phenobarbital and the three chief alkaloids, equivalent approximately to 9 minims of tincture of belladonna.

Belbarb No. 2 has the same alkaloidal content but ½ grain phenobarbital per tablet.

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Postgraduate Medical Education

Programs arranged by the Council Committee on Public Health and Education of the Medical Society of the State of New York are published in this section of the JOURNAL. *The members of the committee are Oliver W. H. Mitchell, M.D., Chairman (428 Greenwood Place, Syracuse); George Baehr, M.D.; and Charles D. Post, M.D.*

Cancer Teaching Programs in Poughkeepsie and Olean

A CANCER Teaching Day was held at Nelson House, Poughkeepsie, on Wednesday, November 10, under the auspices of the Dutchess County Medical Society, the Dutchess County Tumor Clinic, the Tumor Clinic Association of the State of New York, the Medical Society of the State of New York, and the Division of Cancer Control of the New York State Department of Health.

The first meeting was called to order at 4:00 P.M. by the chairman, Dr. Scott L. Smith, of the Dutchess County Tumor Clinic. The first speaker was Dr. Norman Treves, associate surgeon at Memorial Hospital in New York City, who delivered a lecture entitled "The Management of the Patient with Advanced Cancer." The lecture "Cancer of the Uterus" was then presented by Dr. Arthur J. Wallingford, professor of gynecology and head of the department of obstetrics and gynecology at Albany Medical College and Albany Hospital. The third lecturer was Dr. Maurice Lenz, professor of clinical radiology at Columbia College of Physicians and Surgeons in New York City. His topic was "The Treatment of Carcinoma of the Larynx."

The evening meeting was opened at 7:30 P.M. with remarks by Dr. Emil A. Stoller, president of the Dutchess County Medical Society, and was presided over by Dr. James J. Toomey, president of the staff of St. Francis Hospital. Dr. Lloyd F. Craver, attending physician at Memorial Hospital, lectured on "The Significance of Enlarged Lymph Nodes." Dr. Archie L. Dean, associate surgeon at Memorial Hospital, delivered the lecture "Carcinoma of the Genitourinary Tract."

On Thursday, November 11, a Cancer Teaching Evening was held at Olean House in Olean,s ponsored by the Cattaraugus County Medical Society, the Medical Society of the State of New York, and the Division of Cancer Control of the New York State Department of Health.

The program began at 7:30 P.M., under the chairmanship of Dr. James A. Taggert, president of the Cattaraugus County Medical Society. Dr. Lloyd Craver, attending physician at Memorial Hospital, presented a lecture called "The Role of the General Practitioner in the Early Diagnosis of Cancer."

Dr. Clyde L. Randall, professor of gynecology at the University of Buffalo School of Medicine, was the second speaker. His subject was "The Significance and Management of Abnormal Vaginal Bleeding."

Plasma and Whole Blood Therapy

DR. J. Ernest Delmonico, associate professor of clinical surgery at the Syraucse University College of Medicine, lectured on "Plasma Therapy and Whole Blood Transfusion" before the Tompkins County Medical Society.

The meeting was held at 8:30 P.M. on Tuesday, November 16, at the Tompkins County Memorial Hospital, Ithaca, under the auspices of the Medical Society of the State of New York and the New York State Department of Health.

"Early and Late Treatment of Burns"

A SINGLE lecture entitled "The Early and Late Treatment of Burns" was arranged for the Steuben County Medical Society. The lecture took place in Bath, on Thursday, November 11.

The speaker was Dr. Forrest Young, associate professor of surgery at the University of Rochester School of Medicine and Dentistry.

The Medical Society of the State of New York and the New York State Department of Health jointly sponsored this instruction.

"IF—"

"If your Journal does not reach you on time—
If it is thinner than it was last year—
If there are not so many pretty pictures—
If fewer news items appear about you and your colleagues—
If the variety of papers published is not as good as it was last year—
If sometimes there seems to be a preponderance of war-slanted articles—
In short, if you don't find this Journal quite as pleasing to you as it once was—
Just blame Hit, Hiro, and Muss—
Then go out and buy an extra war bond this month and help us finish the job—
And don't forget, while you're at it, to fill out those war stamp books your youngsters have stacked away in the library."—*Southwestern Medicine*



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Faced with the case of *multiple* vitamin deficiency, you have a potent ally in IMPROVED Ol-Vitum Capsules.

Each capsule contains the following 8 vitamins —A, B_1, B_2, B_6, C, D, Niacin Amide, and Pantothenic Acid. Each capsule supplies the following ratio to minimum daily requirements:

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Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
William W. Blackman	87	N.Y. Hom.	October 20	Brooklyn
John C. Bradner	60	N.Y. Hom.	October 13	Middletown
Thomas E. Brown	76	N.Y. Univ.	October 8	Brooklyn
Joseph P. Durkin	37	Cornell	June 28	Bronx
Zenas H. Ellis	49	Vermont	October 20	Manhattan
Lewis F. Frissell	71	P. & S., N.Y.	October 24	Manhattan
Leo Lieberman	68	Univ. & Bell.	May 24	Manhattan
Gordon Lindsay	68	P. & S., N.Y.	October 19	Freeport
E. Pender Porter	68	P. & S., N.Y.	October 23	Brooklyn
Frank C. Shaut	65	Syracuse	October 14	Savona
Hugo A. Siebeneichen	49	Univ. & Bell.	July 22	Bronx
Benjamin Torrens	71	P. & S., N.Y.	October 23	Manhattan
Robert A. Van Allan	–	Pulte	July 8	Rochester
Edwin B. Wells	81	Albany	October 4	North Lawrence
Reinhardt C. Wende	47	Buffalo	October 15	Buffalo

YOUR PHARMACIST WILL COOPERATE

Physicians will obtain better service if they will cooperate with pharmacists in the following ways:

"When medicines are needed quickly, much time can be saved if the physicians will telephone the pharmacy so that prescriptions may be ready when called for or their delivery expedited.

"Considerable loss of time and effort, as well as expense, can be avoided if the physician will cooperate fully in the observance of federal regulations governing the prescribing of codeine and similar drugs. The physician and the pharmacist are both required by law to furnish and record properly written and signed prescriptions for such orders promptly. Telephoned prescriptions, accepted by the pharmacist in good faith, too frequently add to his difficulties because of the time and effort required to obtain the written prescription."—*Med. Annals, District of Columbia*

DOCTORS' SIGNATURES

Doctors are proverbially no great shakes as penmen. On the contrary, their scrawl is often undecipherable and a vivid imagination plus talents of an investigative nature sometimes fail to identify a physician's signature. But, however unreadable *it may be, it is a part of him and on its use or misuse* may depend his fortunes. This premise is very well stated in an article in the *Bronx County (New York) Medical Bulletin* for March, 1943, from which the following is taken:

"From the beginning of time a man's signature has been one of his most valued possessions. Upon his signature or lack of it his life and property may depend. So important is it that even the illiterate is held responsible with nothing more than a cross mark to involve him. When a professional man places his signature on a paper, he certainly must realize the possible consequences."—*Penna. M. J.*



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Relieves Hypertensive Symptoms • Prolongs Hypotensive Action

Each tablet contains a synergistic combination of 20 mg. Viscum album, 60 mg. desiccated hepatic substance and 60 mg. desiccated insulin-free pancreatic substance.

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Prescribe Lipolysin in obesity to stimulate oxidation process that "burn up" fatty tissue. A dependable endocrine product; *free from dinitrophenol.* Tablets—bots 100; Capsules—bots 50, 120; Ampuls—boxes 12. Send for literature, Dept. N, Cavendish Pharmaceutical Corp., 25 West Broadway, New York.

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RELIEVE TEETHING PAINS in Babies with CO-NIB

Mothers appreciate your prescription of CO-NIB because its quick-acting ingredients effectively soothe teething pains.

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A belief among some of the profession that Saratoga Spa serves only the rich, is *not* true. This New York State health center makes provision for the sick, including those who must keep costs within limited means.

The cost of a stay at the Spa is entirely within the control and taste of the individual patient. There *is* luxury here. But for people of modest circumstances there are pensions and moderately priced hotels that offer excellent service and special or individual diets. As a matter of fact, exclusive of traveling expenses, the traditional three weeks' stay can be covered for as little as $125.

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For professional publications of The Spa, physician's sample carton of the bottled waters, with their analyses, write W. S. McClellan, M.D., Medical Director, Saratoga Spa, 155 Saratoga Springs, N.Y.

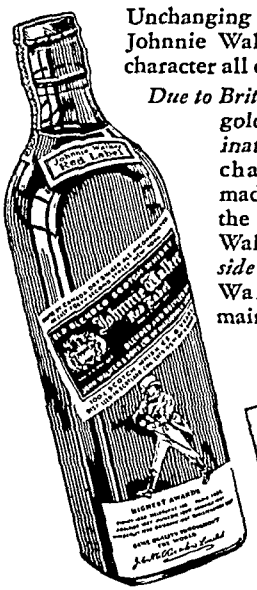
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ACADEMY ANNOUNCES NINTH SERIES OF LECTURES TO THE LAITY

Invitations have been issued by the New York Academy of Medicine for the Linsly R. Williams Memorial Lecture, which will be delivered by Sir Gerald Campbell, G.C.M.G., on November 18, at 8:15 P.M.

Sir Gerald, who is British Minister and Special Assistant to the British Ambassador to the United States, will speak on the "Effects of Science on Human Beings."

His address will be the first of the ninth series of "Lectures to the Laity" to be given under the auspices of the Academy. The Academy's president, Dr. Arthur F. Chace, will be the presiding chairman.

The second lecture will be given on December 14. Lt. Col. Thomas T. Mackie, Medical Corps, Executive Officer of Tropical and Military Medicine, Army Medical School, Washington, D.C., will give an address entitled "Epidemics and War." Dr. Foster Kennedy will be the presiding chairman.

"Food and Civilization" will be the subject of the Ninety-fourth Anniversary Discourse of the New York Academy of Medicine, which is scheduled for January 27. The speaker will be Prof. Charles Glen King, scientific director of the Nitrition Foundation, Inc. The presiding chairman for this meeting will be Dr. Frank Boudreau.

On February 24 Dr. Reginald Fitz will deliver an address entitled "Medicine and the Changing World." Dr. Fitz is lecturer on the history of medicine at Harvard University Medical School. The presiding chairman for the evening will be Dr. John F. Fulton.

The March lecture will be presented on March 23, when Dr. Colin M. MacLeod, professor of bacteriology at the New York University College of Medicine, will speak on "The Past, Present, and Future of Chemotherapy." Dr. Hans T. Clarke will preside.

The last lecture of the series, the George R. Siedenburg Memorial Lecture, will be given on April 27. The speaker will be Dr. Edward A. Strecker, president of the American Psychiatric Association, who will deliver an address entitled "Have We Averted the Rule of King Mob?" Dr. Charles D. Ryan will preside at the final session.

The lectures will all be given at 8:15 P.M. Seats will be reserved on written request.

LECTURES ON "ADVANCES IN MEDICINE" AT MT. SINAI HOSPITAL

A series of lectures on "Advances in Medicine" is to be given this winter by the medical staff of the Mount Sinai Hospital in New York City. They will take place Wednesday evenings at 8:30 P.M. in the Blumenthal Auditorium, 1 East Ninety-ninth Street.

The first lecture will be on November 24. Dr. Robert T. Frank, consulting gynecologist, will tell of "Recent Advances in Endocrintherapy." On December 8, Dr. Marcy L. Sussman, roentgenologist, will speak on "Recent Advances in the Diagnosis of Congenital Heart Disease" and on December 24, Dr. Gregory Shwartzman, bacteriologist, will deliver a lecture entitled "Recent Advances in Bacteriology and Virus Research with Special Reference to Electron Microscopy."

Dr. Israel S. Wechsler, attending neurologist, will speak on January 5, 1944, on "Recent Advances, in Neuropsychiatry with Sspecial Reference to the

[Continued on page 2234]

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IN THE RELIEF OF PAIN

A successor to morphine appears to have been found according to a report made by Dr. Robert C. Batterman at the Clinical Congress of the Connecticut State Medical Society in September.

The new synthetic demerol, a pain-reliever resembling morphine has been used at Bellevue for the past two and a half years where over 4,000 patients have had the benefit of the drug. Cases in which it was used included relief of pain after operations for minor surgical procedures, fractures, abscesses, carbuncles, burns, etc., and in arthritis, neuritis and labor.

Active duration is shorter than in morphine, but the toxicity is lower and sometimes it is more effective.

LESS DRUG STORES?

The National Association of Retail Druggists asks the question, "Are Drug Stores Closing?"

And answers it by publishing the points of a survey made by the National Wholesale Druggists' Association. This survey showed that drug stores are closing at the rate of 629 in six months, basing this estimate on reports received from 62.3 per cent of their membership received between November 1, 1942 and April 30, 1943.

The NWDA also revealed that during the first year of the war, drug stores closed at the rate of 5.7 per cent but that has been reduced to a present closing down rate of only 1.8%.

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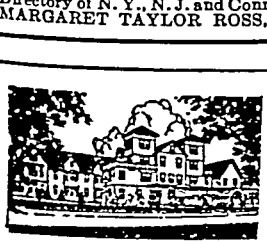
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[Continued from page 2232]

Electroencephalogram and the Shock Treatment of Psychoses." On January 19, 1944, Dr. John H. Garlock, attending surgeon, will tell of "Recent Advances in the Surgical Treatment of Diseases of the Esophagus."

"Recent Advances in Gastritis and Ileitis" is the title of the lecture to be given on February 2, by Dr. Burrill B. Crohn, associate in medicine for gastroenterology; on the same evening "Recent Advances in Ulcerative Colitis" will be discussed by Dr. Asher Winkelstein, associate in medicine for gastroenterology.

On February 16, Dr. Ira Cohen, attending neurosurgeon, will describe "Recent Advances in the Diagnosis and Treatment of Intracranial Lesions." Dr. Ralph Colp, attending surgeon, will lecture on "Recent Advances in the Surgical Treatment of Gastric, Duodenal, and Jejunal Ulceration" on March 1.

On March 15, 1944, the lecture "Recent Advances in Hypertension" will be delivered by Dr. Arthur M. Fishberg, associate physician. Dr. Reuben Ottenberg, associate physician, will give a lecture entitled "Recent Advances in Chemotherapy" on March 29.

"Recent Advances in the Physiology of the Thyroid and Adrenal" will be given on April 5, 1944, by Dr. Louis J. Soffer, adjunct physician. Dr. Paul Klemperer, pathologist, will lecture on "Recent Advances in Cellular Pathology" on April 19. On April 26, Dr. Nathan Rosenthal, hematologist and associate in medicine for hematology, will deliver a lecture called "Recent Advances in the Studies of Hemolytic Anemias."

The last lecture will be "Recent Advances in the Problem of Pulmonary Embolism" by Dr. Harold Neuhof, attending surgeon, on May 3.

WIDENS PARALYSIS STUDY

A long-range program of the National Foundation for Infantile Paralysis and the University of Michigan for training doctors, public health workers, and laboratory technicians to study infantile paralysis and other virus diseases was expanded to its full scope in June when the university opened its new three-story building for its School of Public Health at Ann Arbor.

The new structure will house a unit devoted entirely to work in virus diseases, particularly infantile paralysis. To aid in the execution of the project, the foundation has made a three-year grant totaling $120,000 to the university. Previous grants totaled $110,000.

SUICIDES

". . . . Another misconception regarding suicide is that the person who really intends to kill himself never talks about it beforehand, while the one who seeks only to gain sympathy always does. This idea is totally false, and it is relatively rare to find the suicide who has not given some previous indication of his intention. By this I do not mean that a note is left, for it is unusual to find such a note, but rather that the individual indicates his intention in some other way. A study of suicides occurring in a mental hospital showed that in every instance there was a definite warning—often in the form of direct threats—prior to the attempt. The same situation occurs in practice outside of the mental hospital, and every physician should be on the alert for signs of impending suicide in his patients. . . . ."—*Virginia Medical Monthly*

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A report by Dr. Taylor and Margaret E. Moorehouse in the *Journal of the Canadian Medical Association* revealed the startling results obtained with dogs, cats, rabbits, and mice. Of several hundred animals used in tests, only nine died, and these from other causes than the injections. No abnormalities were discovered in the livers and kidneys.

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—*The New York Times Magazine*

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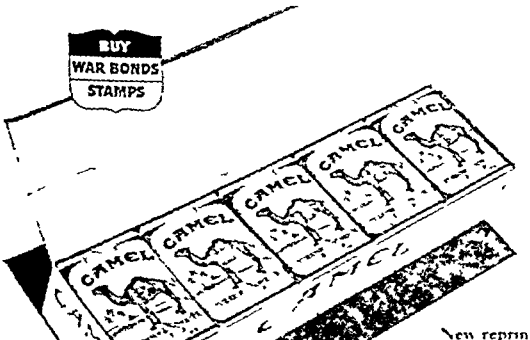


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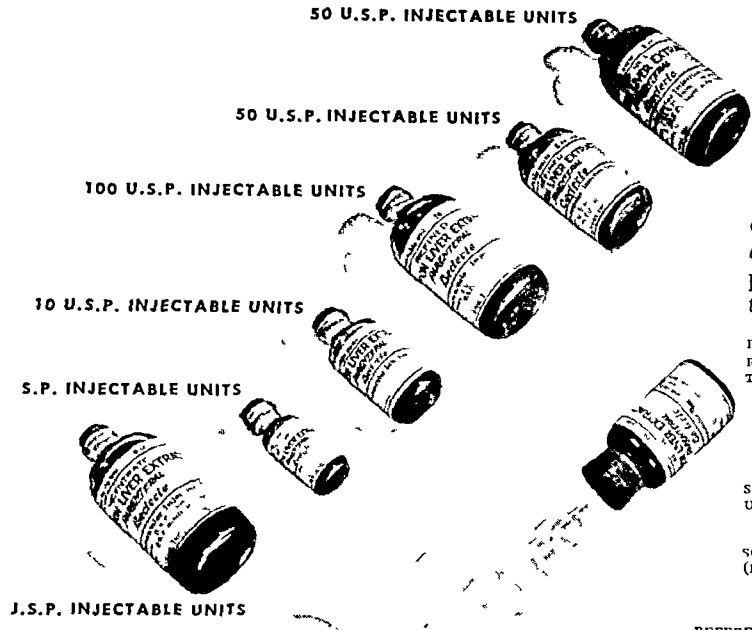
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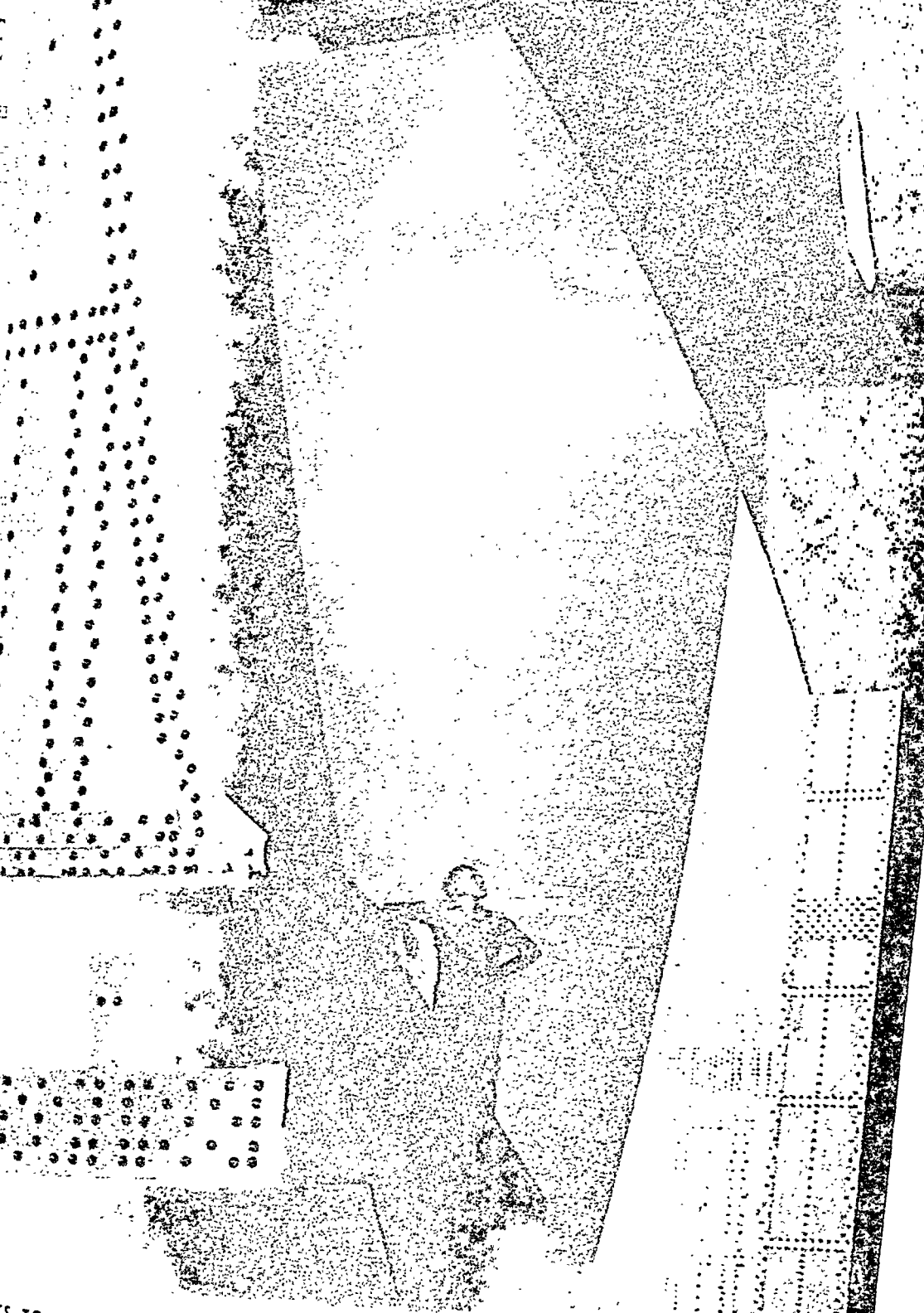
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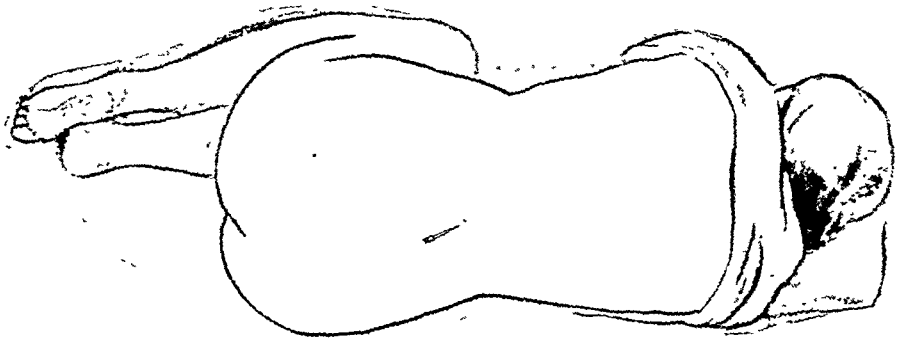
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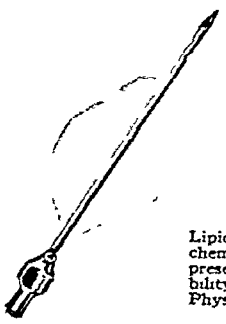
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Authorities recommend immediate removal of the oil after completion of the x-ray examination. This procedure is readily carried out by the technic of Kubic and Hampton* who advise a second lumbar puncture (for withdrawing the oil) with the patient in the neutral position; under fluoroscopic control, the table is tilted until the oil globule is under the needle tip; gentle suction permits of ready withdrawal. By boring a hole in the needle, just behind the bevel (Klemme, Scott, and Woolsey‡), oil removal is facilitated and is more complete.

*Kubic, C. S., and Hampton, A. O.: Removal of Iodized Oil by Lumbar Puncture, New England J. Med. *224*: 455 (Mar. 13) 1941.

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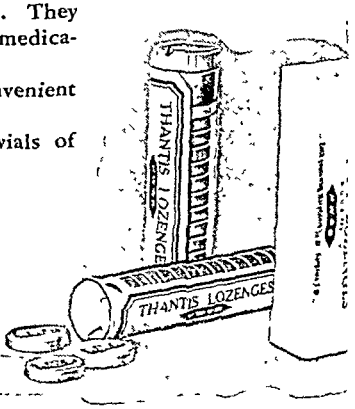
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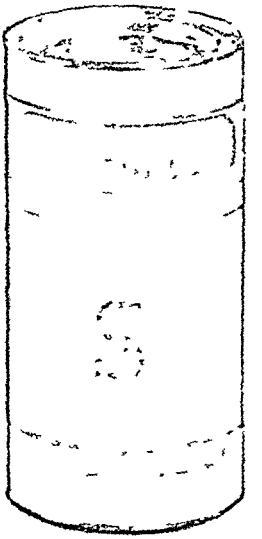
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tive, including those of Finland, Strauss and Peterson (2), the Office of the Surgeon General, U.S. Army (11), Rammelkamp (12), Finland, Peterson and Goodwin (13), and Lowell (14).

FRIEDLÄNDER'S BACILLUS INFECTIONS

Recently the Council on Pharmacy and Chemistry has recommended sulfadiazine as the preferred sulfonamide in Friedländer's bacillus infections (16). The Office of the Surgeon General, U.S. Army (11) has for some time made this recommendation. Others who have suggested the use of the drug include Finland, Peterson and Goodwin (13), Lowell (14), Trevett, Nelson and Long (17), Long (18)-(20).

STAPHYLOCOCCUS PNEUMONIA

The incidence of this condition is low and published reports are few in number. Finland, Strauss and Peterson (2), Finland, Peterson and Goodwin (13), Lowell (14), and Finland, Peterson and Strauss (15) have recommended the use of sulfadiazine in pneumonia caused by staphylococci.

POSTOPERATIVE MIXED PNEUMONIAS

The Office of the Surgeon General, U.S. Army (11), Domm, Flippin, Reinhold and Schwartz (21), Riggins (22) and Flippin (23) have recommended the use of sulfadiazine in postoperative pneumonias.

ADMINISTRATION

Sulfadiazine is conjugated to a lesser extent than other sulfonamides and is excreted quite readily by the kidneys both in the form of free drug and the acetylated fraction. High concentrations are easily obtained in the blood. Dosage for adults in severe infections is usually computed on a basis of 0.10 Gm./Kg. of body weight for the initial dose, followed by 1.0 Gm. every 4 to 6 hours day and night until the temperature has been normal for 72 hours.

For a complete discussion of dosage, see *Lederle* literature available upon request; or, New and Nonofficial Remedies, Edition 1943.

During sulfadiazine therapy, alkalis sufficient to maintain an alkaline urine should be administered unless contraindicated; and liquids should be given to produce a daily urinary output of between 1,000 and 1,500 cc. It is important to establish a full urinary output prior to the institution of parenteral therapy.

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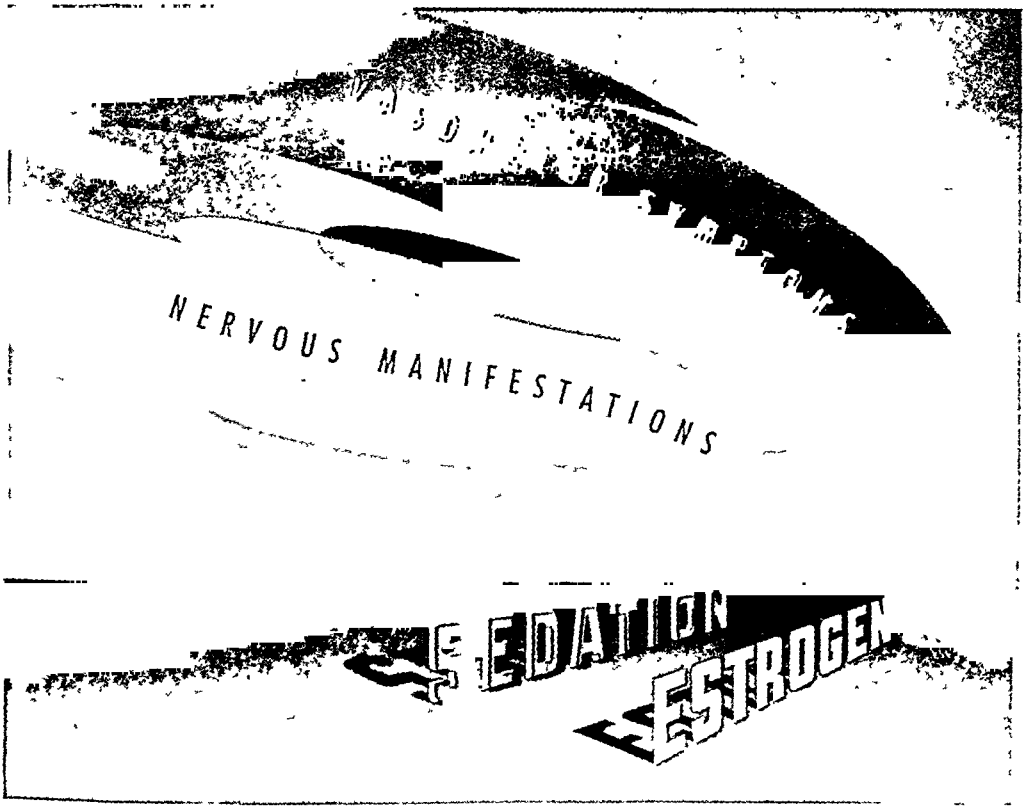
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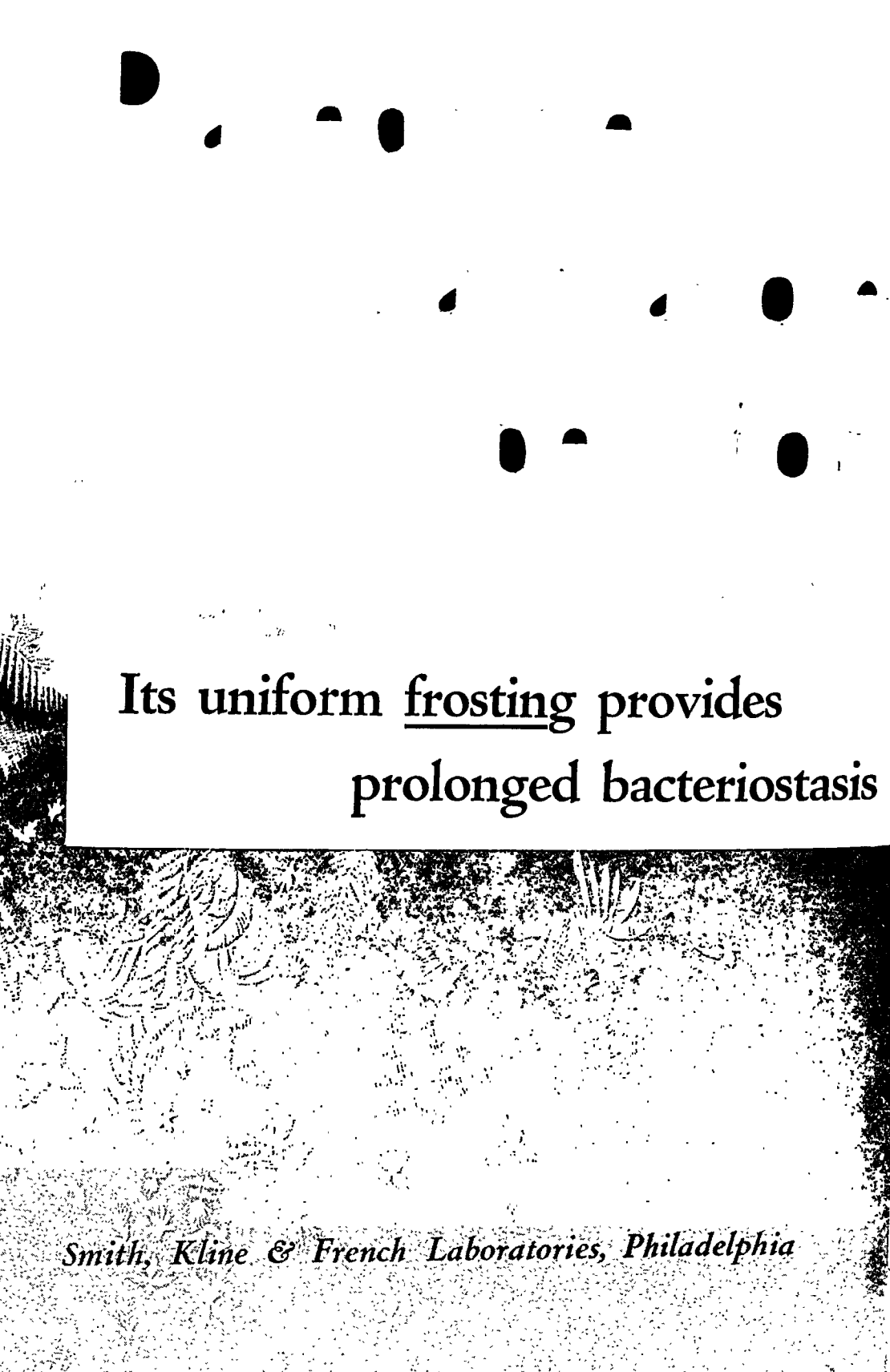
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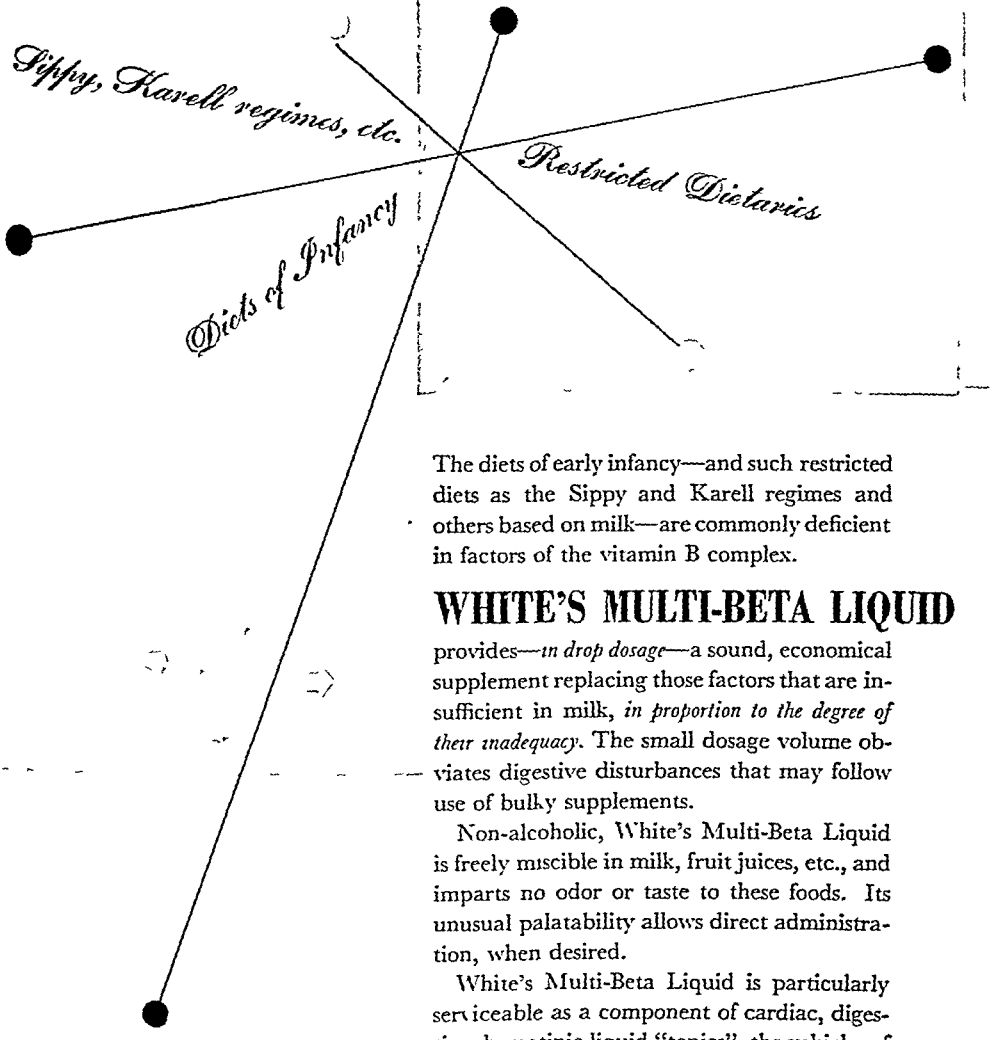
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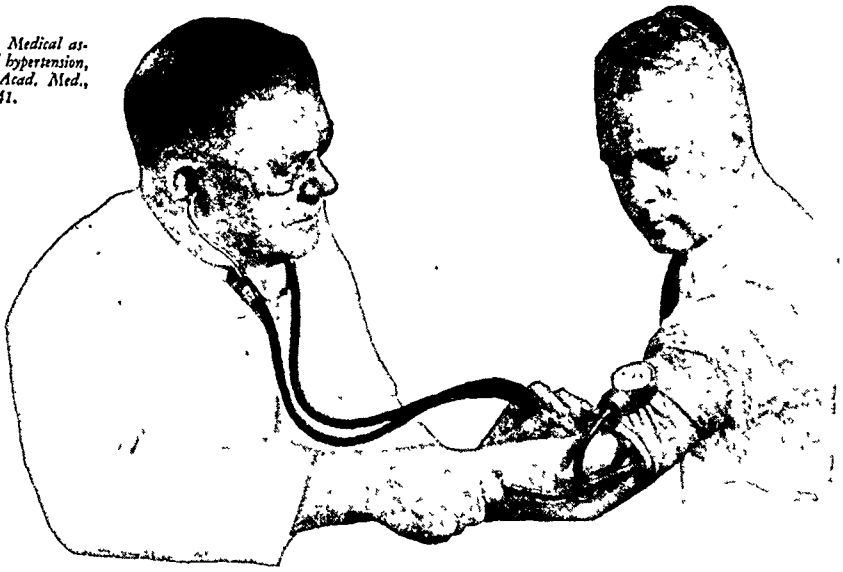
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". . . hypertension usually is a serious disease which terminates the lives of those it afflicts within a relatively short period."*

*Allen, E. V., *Medical aspects of arterial hypertension*, *Bull. N. Y. Acad. Med.*, 17: March, 1941.



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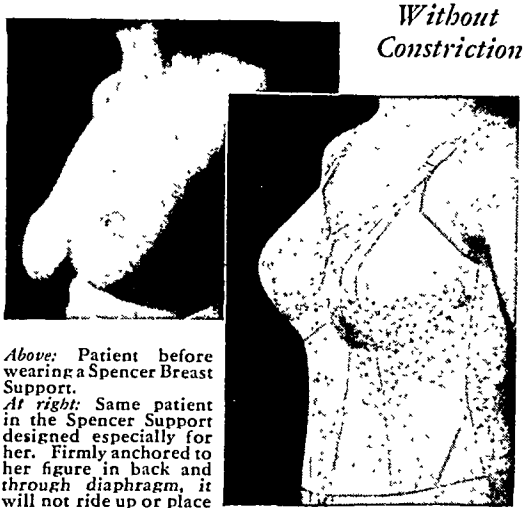
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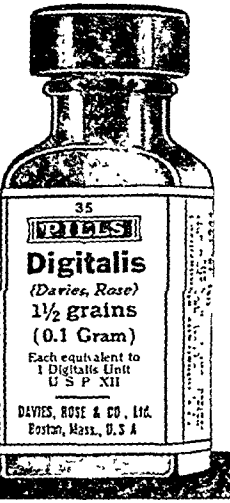
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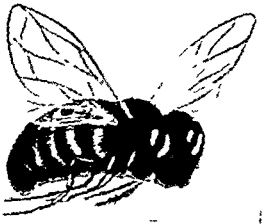
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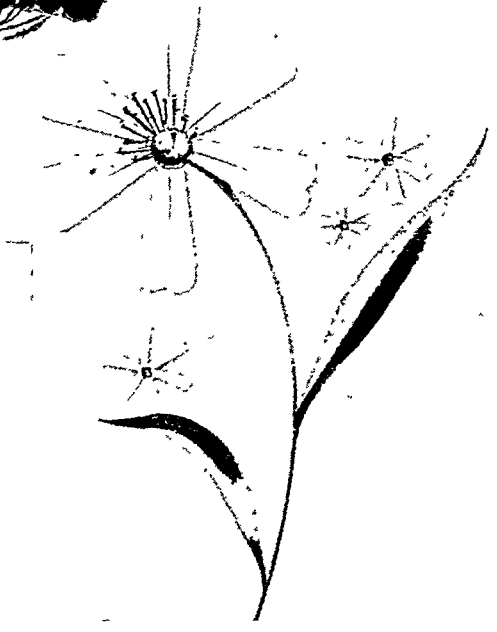
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Especially rich, prepared with milk
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Fertility . . .

• Fertility, the ability to reproduce, is common to all living things. A complex process. reproduction is generally facilitated by a combination of most fortuitous circumstances. At times, however. as in human "sterility", anomalous factors occur to thwart Nature's intended purpose.

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*AMER J OBST. & GYN., SEP. 43

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1. **Adlersberg & Sobotka 1943.** (Fat and vitamin A absorption) J. Nutrition, v. 25, No. 3. 2. **Adlersberg & Sobotka.** (Hypercholesterolemia) J. Mt. Sinai Hospital, vol. IX, No. 6. 3. **Goldman.** (Psoriasis) Cincinnati J. Med. vol. 23, No. 4. 4. **Smith, Goldman & Fox.** (Psoriasis) J. Inv. Derm. vol. 5, p. 321. 5. **Gross & Kesten.** (Psoriasis) Arch. Derm. & Syph., vol. 47, p. 159-174. 6. **Kesten.** (Psoriasis) New England J. Med., vol. 228, p. 124. 7. **Hoagland.** (Cirrhosis) N. Y. State J. Med., vol. 43, p. 1041.

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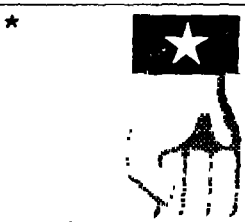
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NEW YORK STATE JOURNAL OF MEDICINE

Copyright 1943 by the Medical Society of the State of New York

VOLUME 43 DECEMBER 1, 1943 NUMBER 23

Editorial

The Well of Righteousness, III

Had not the Editor of the *J.A.M.A.* chosen to hang out the medical family wash on pages 354 and 355 of his usually suave and dignified publication,[1] the matter of state-journal advertising could probably have been ironed out amicably in conference.

He has chosen to call us to account publicly—but firmly—for being a veritable directory of unestablished and unscientific therapy, and for attacking from the rear. "The threat most difficult to meet," he says, "is that from those who should be presumed to be friends."

Now until the appearance of this querulous outburst of hysterical chastisement, this JOURNAL had no quarrel with anyone except the enemies of the United Nations. But on October 9, 1943, with no warning, his editorial bomb was exploded in our business office[2] by the *J.A.M.A.* "In any war," gobbles the editor of that publication on page 355, "the most dangerous attack is the attack from the rear!!"

Well, if the editor of the *J.A.M.A.* wants war, he'll get it. Our right to conduct our publication according to the laws of the State of New York and the considered judgment of our Publication Committee is declared to be violated; his editorial attack is hereby characterized as discourteous, in bad taste, and of such a nature that it leaves us no choice but to counterattack, publicly.

In 1939 when the *N.Y.S.J.M.* was in the Cooperative Medical Advertising Bureau, 39.8 per cent of the total advertising in our JOURNAL was within the jurisdiction of the Council on Pharmacy and Chemistry of the A.M.A.

In 1943, 72.3 per cent of the total JOURNAL advertising was within Council jurisdiction.

In 1939, 60.2 per cent of the total was *not* within A.M.A. Council jurisdiction; in 1943, 27.7 per cent of the total was *not* within Council jurisdiction. Thus there was a gain of 32.5 per cent of advertising *within the jurisdiction of the Council* and a diminution of 32.5 per cent of advertising over which the Council has no jurisdiction, such items as sanitaria, hotels, surgical equipment, bandages, foods, etc.

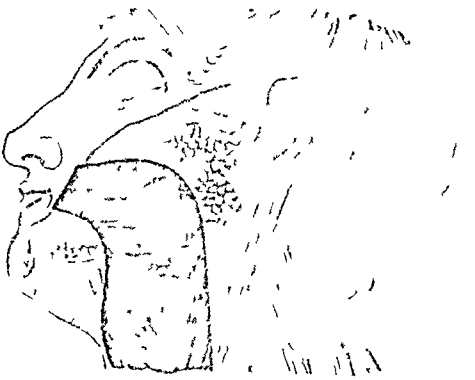
It is true that in 1943 the *N.Y.S.J.M.* carried advertisements of 7.5 per cent proportionately fewer Council-accepted items. It is true that in 1943, the *N.Y.S.J.M.* carried advertisements of 8.2 per cent more Council-rejected products than in 1939.[3]

It is true that *both in 1939 and 1943* about 61.5 per cent of the total advertising was of products which have not been submitted to the Council at all. Why was this not a matter for public reprimand in 1939, 1940, 1941, and 1942?

The Publication Committee of the Medical Society of the State of New York hereby serves notice that until directed otherwise by the House of Delegates of the Medical Society of the State of New York it will continue to mind its own business and publish the NEW YORK STATE JOURNAL OF MEDICINE as it sees fit.

[1] J.A.M.A., Vol. 123, No. 6, Oct. 9, 1943.
[2] *Ibid.*, p. 355, lines 1, 41, 47.
[3] *See also* New England Journal of Medicine, Oct. 28, 1943.

announcing



A NEW TECHNIQUE OF LOCAL CHEMOTHERAPY IN ORAL AND PHARYNGEAL INFECTIONS

Recent reports* indicate the clinical value of the sulfonamide compounds as topical medication in oral and pharyngeal infections.

For such conditions White's Sulfathiazole Gum now provides a more effective, prolonged, convenient and pleasant method of local chemotherapy than short-acting gargles, sprays and dusting powders.

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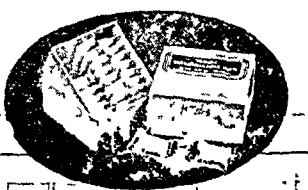
Indications

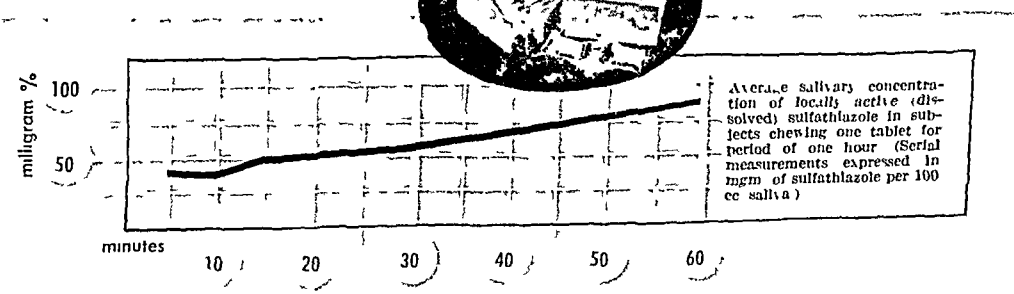
In the *local* treatment of acute and chronic sulfonamide-susceptible infections of oral and pharyngeal mucosa and contiguous tissues; e.g., tonsillitis, pharyngitis, infections, gingivitis and stomatitis, non-epidemic parotitis, peri-tonsillar abscess; also as prophylaxis in the post-tonsillectomy state.

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*Literature on request

White's sulfathiazole gum





factory distribution and utilization of medical manpower even under the stress of the national emergency point to the need of better planning and wise professional leadership if medicine is fully to meet the task before it."[2]

Evaluation of the present accelerated teaching programs is not yet possible. Certainly, in the long run, some improvements should result, some dead wood should fall under the axe, clearing the way for necessary revisions in the content and mechanics of medical education along the lines suggested by the leaders in this field.

Old ideas, like old men, must die, as Tennyson observed, "or the world would grow mouldy, would only breed the past again."[3]

[1] Director of the Division of Medical Education, Rockefeller Foundation.
[2] New York Times, October 27, 1943.
[3] Becket.

Correspondence

Directory of Medical Specialists

ADVISORY BOARD FOR MEDICAL SPECIALTIES
DIRECTORY OF MEDICAL SPECIALISTS
OFFICE OF THE DIRECTING EDITOR
1015 HIGHLAND BUILDING
PITTSBURGH, PENNSYLVANIA

November 1, 1943

To the Editor:

The following announcement is being sent to a number of the leading medical journals of this country. The Advisory Board for Medical Specialties would be grateful to you if you could find it possible to publish this announcement in your journal.

Announcement is made that the *Directory of Medical Specialists* is now to be published by the A. N. Marquis Company of Chicago, publishers of *Who's Who in America*. Previous editions have been published for the Advisory Board for Medical Specialties by the Columbia University Press of New York City.

It is planned not to issue the next edition before 1945, on account of the war, but the A. N. Marquis Company will publish a supplemental list of all those who have been certified by the American Boards since the last (1942) edition of the *Directory*, totaling about 3,600. This is to be distributed at cost, and monthly or bimonthly bulletins listing successful candidates for certification at examinations during the additional interim before the next edition are to be issued as a subscriber's service.

Dr. Paul Titus (Pittsburgh), of the American Board of Obstetrics and Gynecology, will continue as the Directing Editor, and Dr. J. Stewart Rodman (Philadelphia), of the American Board of Surgery, continues as Associate Editor. The Editorial Board will be composed, as before, of the secretaries of the fifteen American Boards.

Communications should be addressed to the Directing Editor, Directory of Medical Specialists. 919 North Michigan Avenue, Chicago 11, Illinois.

Very truly yours,

PAUL TITUS, M.D., *Directing Editor*

Communication No. 53: Prompt Filing of Reports of Attending Physicians to Labor Department

MEDICAL SOCIETY OF THE STATE OF NEW YORK
COMMITTEE ON WORKMEN'S COMPENSATION

October 21, 1943

To the Chairman of the Workmen's Compensation boards and to the Secretaries of all County Medical Societies

Dear Doctor:

We have frequently brought to the attention of physicians who treat compensation claimants in this State, the fact that the *prompt filing of workmen's compensation reports is of extreme importance*, especially to the injured workman who may be deprived of compensation payments because of the failure of the attending physician to comply with the law. Furthermore, delay or neglect in filing redounds to the disadvantage of the attending physician himself, and adds to the difficulties of administration in the Department of Labor.

While it is appreciated that the war has increased the burden of practicing physicians, and makes great demands upon their time, we are again urging physicians to make every effort to report compensation cases within the time limits prescribed by law; but, in any event, at the earliest possible moment.

Mr. Ralph R. Boyer, Director, Division of Workmen's Compensation of the Department of Labor, in a letter under date of October 16, has again requested us to urge physicians throughout the State to make an effort to report cases of injury or occupational diseases promptly to the Department of Labor and to the insurance carrier or employer.

Mr. Boyer states:

"The proper functioning of the Workmen's Compensation Administration depends upon the voluntary commencement of payment of Workmen's Compensation by the insurance carriers. This is frequently delayed where there is a failure on the part of the attending physician to file his report with the insurance company as well as with

Revision in Medical Education

Necessary revisions of teaching methods in the medical schools of the nation were advocated by Dr. Alan Gregg[1] at the meeting of the Association of American Medical Colleges, October 28, 1943, at Cleveland, Ohio. He criticized what he called the "convoy system," in which the pace was set by the slowest, and urged that educational methods be streamlined to give the intelligent student full scope for his abilities.

Such revision, in our opinion, has been long overdue. There seems to be no more reason why the more intelligent student should be held back than to hold back a faster or a better trained horse on the racetrack so that he should finish at the same time as the rest of the horses. Certain concessions are, as a matter of common sense, necessary because of the mechanics of the educational curriculum, but these should not be permitted seriously to interfere with practical revisions in teaching methods in favor of the better students.

"Under the convoy system," Dr. Gregg said, "the abler students in our four-year American colleges were only rarely encouraged and never forced to the full use of their abilities. The less able students, the less precocious, the plodders, had time enough to meet the minimum requirements, and the average students meet their requirements with no distinction but with no reduction in their ranks. Now if (by means of the accelerated course) you shorten the distance a convoy must be taken, it is harder to recognize the best boats. The main immediate result of the accelerated premedical course will be that it will be harder to select good students.

"Shortening the premedical course does one thing of very great importance: for the first time it pushes all the able students. This is likely to bring us all to face something we have been rather evasive about—that we have never asked or expected as much of the best of our students as they can certainly deliver.

"American education has never faced the question of how to foster an elite. Behind the question of whether we have one, or how to create one, stands the equally important query, 'do we want one?' Our educational philosophy would be in for some extensive reformation if as a result of the war we were to ask ourselves, 'should excellence be pushed?' If it should, we haven't the system to do it in premedical education.

"There are plenty of M.D.'s in the world; there are not enough good doctors. It is not hard to make students know about disease; it is hard to make them care about it. I doubt if school and college requirements sort out the kind of human beings who will care about eliminating or alleviating disease."

Dr. Victor Johnson of the University of Chicago School of Medicine and Dr. James A. Greene of the Baylor University School of Medicine told the meeting that the problem of distributing medical personnel was distinct from that of the total number of doctors.

Discussing the question of the postwar status of medicine, Drs. Johnson and Greene charged that "medical schools generally have failed in their responsibilities to students in not providing instruction and stimulating discussion in this vital area.

"Prepayment plans, cost of medical care, hospital insurance, group practice, compulsory medical insurance, the Beveridge Plan, social security, the Wagner-Murray-Dingell bill, 'socialized medicine', are terms as vital to doctors and medical students as sulfa drugs, electro-encephalograms, and renal hypertension," Drs. Johnson and Greene stated.

"Opportunities should be provided in the curriculum for unbiased consideration of these problems in the same scientific spirit of inquiry as that which is the basis of our presentation of the science of medicine."

Dr. Willard C. Rappleye, dean of the faculty of medicine, Columbia University, who discussed postwar medical education, said that a great opportunity would be provided the medical schools, in cooperation with affiliated hospitals, "to assist returning physicians to make up for their deficiencies in clinical fields and also in the medical sciences."

"It seems reasonable to assume," Dean Rappleye stated, "that the profound social and economic conditions that are likely to follow the war will necessitate significant changes in medical practice. The close relationships between income and sickness, both as cause and effect, suggest that the problems of medical care cannot be divorced from those of unemployment, old age, income, living conditions, and other features of Social Security.

"For large elements of society the problems of illness can be met only through collective provisions for medical care which aim to distribute the costs over a large group of the population and over a long period of time.

"There is need in most urban as well as rural communities for sound planning by competent lay and professional leaders to provide for the entire population adequate facilities and personnel for the modern practice of medicine. The unsatis-

factory distribution and utilization of medical manpower even under the stress of the national emergency point to the need of better planning and wise professional leadership if medicine is fully to meet the task before it."[2]

Evaluation of the present accelerated teaching programs is not yet possible. Certainly, in the long run, some improvements should result, some dead wood should fall under the axe, clearing the way for necessary revisions in the content and mechanics of medical education along the lines suggested by the leaders in this field.

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The following announcement is being sent to a number of the leading medical journals of this country. The Advisory Board for Medical Specialties would be grateful to you if you could find it possible to publish this announcement in your journal.

Announcement is made that the *Directory of Medical Specialists* is now to be published by the A. N. Marquis Company of Chicago, publishers of *Who's Who in America*. Previous editions have been published for the Advisory Board for Medical Specialties by the Columbia University Press of New York City.

It is planned not to issue the next edition before 1945, on account of the war, but the A. N. Marquis Company will publish a supplemental list of all those who have been certified by the American Boards since the last (1942) edition of the *Directory*, totaling about 3,600. This is to be distributed at cost, and monthly or bimonthly bulletins listing successful candidates for certification at examinations during the additional interim before the next edition are to be issued as a subscriber's service.

Dr. Paul Titus (Pittsburgh), of the American Board of Obstetrics and Gynecology, will continue as the Directing Editor, and Dr. J. Stewart Rodman (Philadelphia), of the American Board of Surgery, continues as Associate Editor. The Editorial Board will be composed, as before, of the secretaries of the fifteen American Boards.

Communications should be addressed to the Directing Editor, Directory of Medical Specialists. 919 North Michigan Avenue, Chicago 11, Illinois.

Very truly yours,

PAUL TITUS, M.D., *Directing Editor*

Communication No. 53: Prompt Filing of Reports of Attending Physicians to Labor Department

MEDICAL SOCIETY OF THE STATE OF NEW YORK
COMMITTEE ON WORKMEN'S COMPENSATION

October 21, 1943

To the Chairman of the Workmen's Compensation boards and to the Secretaries of all County Medical Societies

Dear Doctor:

We have frequently brought to the attention of physicians who treat compensation claimants in this State, the fact that the *prompt filing of workmen's compensation reports is of extreme importance*, especially to the injured workman who may be deprived of compensation payments because of the failure of the attending physician to comply with the law. Furthermore, delay or neglect in filing redounds to the disadvantage of the attending physician himself, and adds to the difficulties of administration in the Department of Labor.

While it is appreciated that the war has increased the burden of practicing physicians, and makes great demands upon their time, we are again urging physicians to make every effort to report compensation cases within the time limits prescribed by law; but, in any event, at the earliest possible moment.

Mr. Ralph R. Boyer, Director, Division of Workmen's Compensation of the Department of Labor, in a letter under date of October 16, has again requested us to urge physicians throughout the State to make an effort to report cases of injury or occupational diseases promptly to the Department of Labor and to the insurance carrier or employer.

Mr. Boyer states:

"The proper functioning of the Workmen's Compensation Administration depends upon the voluntary commencement of payment of Workmen's Compensation by the insurance carriers. This is frequently delayed where there is a failure on the part of the attending physician to file his report with the insurance company as well as with

the Division. Where payment of compensation is not begun voluntarily for lack of adequate medical reports the Division must hold hearings in order to secure such payment. Such hearings tend to clog the calendars and to take calendar time from those cases in which there are genuine issues to be determined.

"It would be greatly appreciated if you would again call this matter to the attention of physicians throughout the State. I know that the demands upon their time are increasingly great, but I am sure they will appreciate the bearing of their reports upon the prompt payment of compensation and therefore upon the morale of the workmen of this State.

RALPH R. BOYER, *Director*
DIVISION OF WORKMEN'S COMPENSATION
80 Centre Street, New York 13, New York"

Secretaries of medical societies are hereby requested to bring this communication to the attention of all physicians qualified by their compensation boards to treat compensation claimants and to publish this communication in their journals.

WORKMEN'S COMPENSATION BUREAU
DAVID J. KALISKI, M.D., *Director*

Erratum

Ft. George G. Meade
Maryland
October 17, 1943

To the Editor
NEW YORK STATE JOURNAL OF MEDICINE
Dear Sir:

I wish to call your attention to an error in the case report, "Contrast Cardiovascular Study of a Patient with Rheumatic Miltral Valvular Disease and Dextrocardia with Complete Situs Inversus," submitted by Dr. Steinberg and me, and published in the September 15, 1943, issue. The cut in Fig. 1 has been printed upside down.

Since I was on active duty with the Army at the time when the proofs of the article would have been available, I had no opportunity to correct this error. I should appreciate a statement in the JOURNAL correcting this mistake if and when you will be able to publish it, since, in their present state, the electrocardiographic tracings as printed are, to say the least, bizarre.

Very truly yours,
ALEXANDER G. SILBERSTEIN, Capt., M.C.

SCIENTIFIC EXHIBITS

1944

ANNUAL MEETING

Applications for space for the scientific exhibits should be made directly to

Dr. J. G. Fred Hiss,
505 State Tower Building,
Syracuse 2, New York,

Chairman of Subcommittee on Scientific Exhibits of the Convention Committee.
The Annual Meeting will be held May 8–11, 1944, Hotel Pennsylvania, New York City.
The list will be closed on January 20, 1944.

PETER IRVING, M.D., *Secretary*

SURGICAL TREATMENT OF PLASTIC INDURATION OF THE PENIS (PEYRONIE'S DISEASE)

OSWALD S. LOWSLEY, M.D., F.A.C.S., New York City

PLASTIC induration of the penis is not a rare disease, although it often remains unrecognized until its later stages. It is characterized by fibrous infiltration which begins in the septum between the corpora cavernosa in any part of the organ and later may extend into Buck's fascia on each side in uneven plaques. It rarely affects the cavernous bodies.

The disease was first described by La Peyronie[1] in 1743. Polkey[2] found 549 undoubted cases in the literature in 1928, and many more have been added since. Fully two-thirds of the reported cases have been in men between the ages of 40 and 60 years, but the disease may occur in younger men and in those of advanced age. One of our patients was only 30 years old, and approximately a dozen cases in men under 25 years of age have been recorded.

Causation

The cause is unknown. The lack of agreement regarding the causation of the induration is attested by the variety of terms used to describe the condition: chronic cavernositis, circumscribed fibrosis, plastic induration of the penis (Sonntag,[3] Wiedhoff,[4] and most German writers), indurated cavernositis, plastic induration of the corpora cavernosa (many French writers), fibrosclerosis of the penis, and many others.

Most of the earlier writers believed the condition to be either a fibrosis of inflammatory origin, or a general disease of the vascular system, often but not always of syphilitic origin.

Tuffier[5] thought the induration was located always in the enveloping fibrous sheaths of the corpora cavernosa, and considered it a degeneration of connective tissue elements similar to phenomena occurring in joints and aponeuroses in the diatheses of gout, diabetes, and arthritis.

Sachs[6] collected records of a large number of probable cases of plastic induration, and from their examination concluded that venereal infection, and probably diabetes and gout, might be of causative significance, and that trauma almost surely was.

Zur Verth and Scheele[7] thought the induration arose from Buck's fascia and the adjacent area, which is rich in elastic fibers. They believed that in older subjects the induration was a replacement of the elastic tissue by fibrous tissue such as takes place in the walls of the blood vessels during senescence, and that in younger men the degeneration of elastic tissue was due to the effects of repeated slight trauma undergone during coitus, chronic irritation, constitutional diathesis, or poisons (alcohol, tobacco). Rothschild[8] also attributed the production of induration to the tension to which the pensile sheaths are subjected during erection and coitus.

According to Legueu,[9] the condition is simply a sclerosis of the tunica albuginea and adjacent parts because of the action of arthritis and age.

Wesson[10] in a recent article states that "internal trauma from prolonged ungratified sexual desires or external trauma from lack of proper sexual cooperation are the direct causes. The approaching menopause with the concomitant frigidity of the consort is probably indirectly the principal cause of induration."

Most present-day writers locate the plastic induration in the septum, tunica albuginea, and Buck's fascia, and frankly admit that the cause is unknown. They point out that while antecedent or concurrent disease was present in many of the published cases, in considerably more the induration was not associated with either trauma or local or general disease.

Pathology

The induration appears as a node or nodules, a cord, or one or more plaques on the dorsal surface of the penis. It may arise at any point on the median dorsal aspect, but usually begins near the symphysis pubis or posterior to the coronary sulcus, lying below the dorsal vessels and nerves. From its point of origin, it slowly but progressively spreads to involve all or part of the shaft and even the lateral surface of one or both of the corpora cavernosa and the depths of the septum. It reaches a certain growth and then remains stationary in size. Sonntag[3] states that the node is the beginning, the cord forms the progression, and the plaque the fully developed type. The plaques may be extensive, developing from glans to pubis.

The indurations are round or irregular in shape, sharply circumscribed, quite thick, and hard, cartilaginous, or even bony in consistency. They are easily palpated both when the penis is in the flaccid state and during erection. Sometimes the mass may be intimately attached to the corpora cavernosa and but slightly movable.

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 5, 1943.

From the Department of Urology (James Buchanan Brady Foundation) of the New York Hospital, New York City.

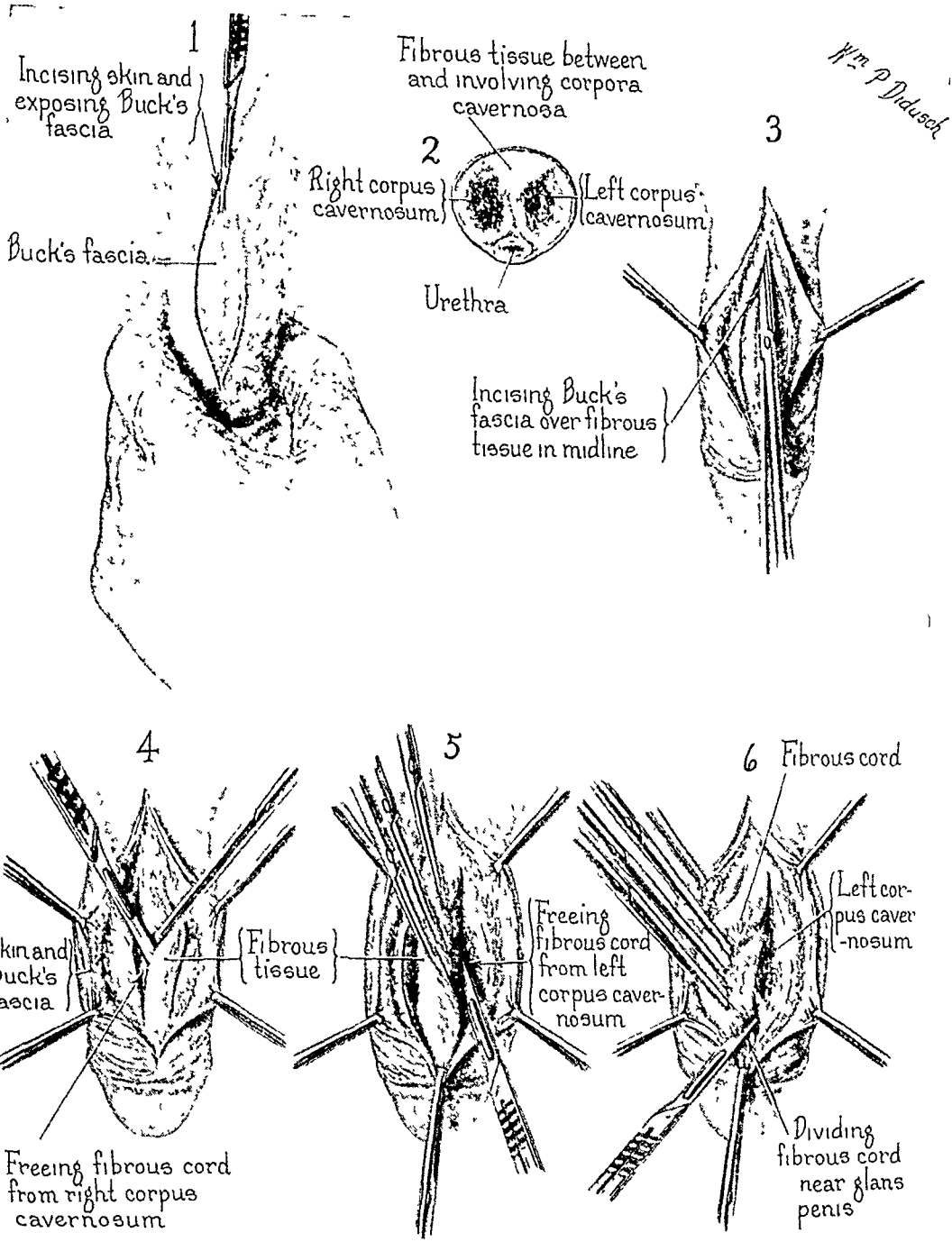


FIG. 1. Operation for plastic induration of the penis (Peyronie's disease). 1—Incising the skin on the dorsum to expose Buck's fascia. 2—Sectional view showing relation of fibrous area to the corpora cavernosa 3—Incising Buck's fascia over the fibrous tissue in the midline. 4—Freeing the fibrous cord from the right corpus. (Buck's fascia has been freed laterally.) 5—Freeing the fibrous cord from the left corpus, which is involved in the fibrotic process. 6—Dividing the fibrous cord near the glans penis after it has been freed from the corpora cavernosa.

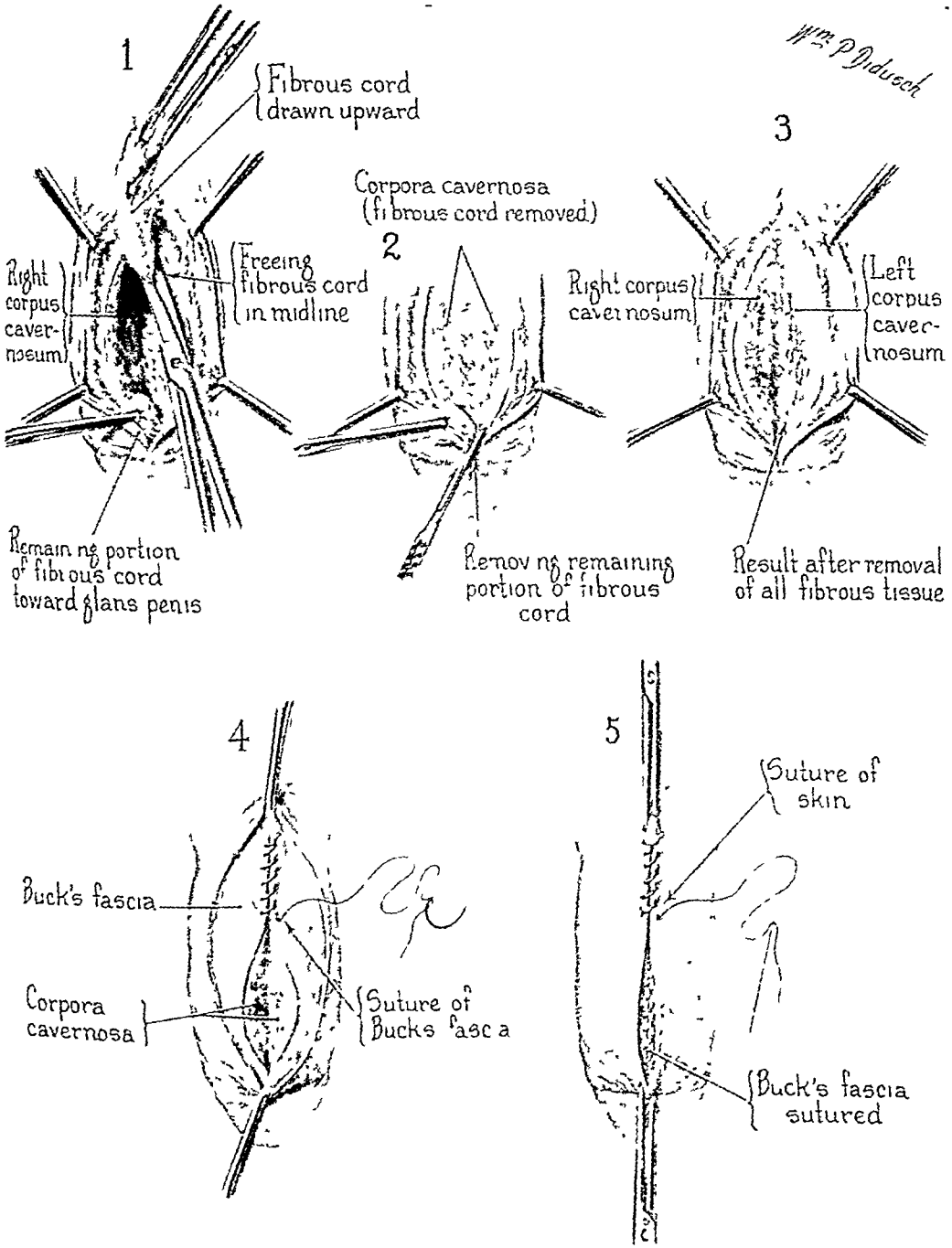


FIG 2 1—The fibrous cord has been drawn upward and is being freed from between the corpora cavernosa in the midline 2—Removing remaining portion of the fibrous cord near the glans penis 3—Showing the result after removal of all the fibrous cord The cut surfaces of the corpora cavernosa can be seen. 4—Suturing Buck's fascia (When necessary small pads of fat are applied to the breaks in Buck's fascia which expose the venules of the corpora.) 5—Final closure of skin over Buck's fascia

Usually, but not always, it is painless to pressure. The skin overlying the induration is normal and readily movable.

Microscopically, the scarlike tissue resembles keloids, with but few blood vessels and many embryonic cells, from which develop the fibrous and osseous tissue. Small vessels appear to be embedded in connective tissue, and Weidhoff[4] believes that the sheaths of these smaller vessels are the starting points of the induration. Polkey[2] found 40 cases in the literature in which pathologic examinations had been made. He observes that fibrous tissue was mentioned in nearly all, bone in 17, cartilage in 7, calcification in 6, and elastic tissue in 3. Cartilage and bone develop usually in advanced indurations in old subjects, but may not necessarily develop at all.

True plastic indurations have no tendency to spontaneous disappearance. Suppuration, ulceration, and malignant degeneration of the fibrous tumors have not been reported.

Symptoms and Diagnosis

Since the onset is insidious and the development slow and for the most part painless, curvature of the penis on erection is likely to be the first sign to call the patient's attention to the disease. Pain on erection may be mild or very severe. The most common complaints are of painful and difficult erections, a lump in the penis, deformity of the penis, and difficult or impossible coitus. Nervous manifestations that are due to interference with normal sexual life are frequent in the younger group of patients.

The degree and direction of the curvature depend on the location, form, and extent of the fibrosis. The angulation is most often upward and backward, less often laterally (toward the side on which the induration is found), and, in very rare cases, downward. Generally the more posterior the induration the more pronounced the curvature. Noticeable deformity in the flaccid state is uncommon, the deviation usually occurring only when the penis is erect.

The diagnosis should be readily established from the history and clinical findings. Plastic indurations must be differentiated from indurations of the urethral wall or of the corpus spongiosum, as well as from gumma, urethral carcinoma, and benign tumors, such as fibroma and chondroma. Indurations of the urethra and spongiosum are so painful on manipulation that differentiation is relatively easy. Benign tumors are very rare and steadily increase in size, whereas plastic indurations remain stationary for long periods. Syphilitic gummas seldom appear on the penis, the Wassermann test is positive, and they respond to antiuletic therapy. Carcinoma rapidly involves the skin and erectile bodies, ulcerates, and metastasizes early to the inguinal nodes.

Treatment

Many different forms of treatment have been described, indicating that no one method has proved entirely satisfactory. X-ray and radium have been utilized without conspicuous success, although a few cures have been reported from the former. Electrolysis, diathermy, and other electrical treatments have proved of no curative value. The injection of fibrolysin has been advocated; and José May,[11] of Montevideo, has attained some success by the use of autogenous vaccines made from the tissues when the induration has followed granuloma inguinale.

In early cases, in which the induration is confined to the septum between the corpora cavernosa, the author has had outstanding success in a small series of cases by the surgical removal of the indurated area, repairing the breaks in Buck's fascia with pads of fat.

Operative Technic.—The anesthesia used is usually spinal.

A tourniquet is placed around the proxima portion of the penis. A midline incision is mad on the dorsum of the penis extending from th penopubic junction to the sulcus of the glan penis. This is deepened to the fibrotic tissue an extended laterally on each side to the curve portion of Buck's fascia. The thickened tissue of the posterior portion of the septum are the dissected free, care being taken to avoid entering the corpora cavernosa more than is necessary to remove the offending fibrotic tissue (Fig. 1).

It is customary to isolate the tissues of the septum at its middle point and continue the dissection both proximally and in a distal direction.

After the removal of the indurated septum, small pads of fat are applied to the breaks in Buck's fascia which expose the venules of the corpora cavernosa, and the wound is repaired by suturing the cut edge of Buck's fascia on each side to its fellow of the opposite corpus cavernosum with catgut or silk (Fig. 2).

The tourniquet is then released, and bleeding points are ligated or repaired with additional fat. The subcutaneous tissues are sutured over the repair and the skin is closed with silk.

Convalescence from this operation is rapid. In no case has there been uncontrollable bleeding or subsequent necrosis of the penile tissues.

Case Reports

In all, 7 patients have been operated upon by this method. The remote results are shown in the accompanying table. Brief résumés of the case reports follow.

Case 1.—C. K., aged 52 years, was admitted to the Brady Foundation of the New York Hospital on

TABLE 1.—SEVEN CASES OF PLASTIC INDURATION OF THE PENIS (PEYRONIE'S DISEASE) TREATED BY OPERATION

Case	Age	Duration of Symptoms	Type of Deformity	Cause	Date of Operation	Immediate Results	Remote Results	Remarks
1. 113078	52	2½ years	Dorsal and left lateral curvature. Perineal pain	Fell and struck penis; dysuria	11/6/35	No complications	Excellent	Entirely relieved when last heard from in 1938
2. 128365	50	3 years	Dorsal and left lateral curvature. Painful erections and coitus	No history of trauma or disease	4/14/36	No complications	Excellent	No curvature and no pain on coitus
3. 184165	30	5 years	Dorsal and left lateral curvature. Pain on erection	Right hip ankylosed. No lues	10/25/37	No complications	Excellent	Recent letter expressed relief of both physical and mental distress
4. 212684	57	8 months	Dorsal curvature	Sinusitis; tonsillitis	8/26/38	No complications	Excellent	Pain and dorsal curvature relieved
5. 257181	45	12 years	Dorsal and right curvature	Fracture of penis during coitus	1/26/40	No complications	Very poor	Necessary to remove considerable part of Buck's fascia on right side. Postoperatively there was curvature to left
6. 319347	53	6 months	Dorsal curvature. Painful coitus	Pneumonia; tumor of sternum; arthritis; no lues	1/28/42	No complications	Excellent	Dorsal curvature entirely relieved
7. 341857	52	2 years	Dorsal curvature. Painful erection	Arthritis of knee. No lues	10/19/42	No complications	Excellent	Pain and curvature relieved

November 5, 1935, with a diagnosis of Peyronie's disease. Two and a half years before, he had fallen heavily on his penis. There were no lacerations, but the fall was followed by dysuria; and about one and one-half years later he noticed that the urinary stream was deflected to the left and that the penis, when in erection, assumed an uneven contour, the dorsal portion of the shaft being thicker than formerly and the organ deviating to the left. This condition was associated with perineal pain, more marked on sitting. The physical examination was negative except for the local condition, which showed a dense fibrous cord of tissue extending the full length of the penis over the right corpus cavernosus. The laboratory tests were essentially negative. Under spinal anesthesia, the indurated area was removed. Convalescence was uneventful, and the patient was discharged on the ninth day.

Case 2.—J. L., aged 50 years, was admitted to the hospital on April 13, 1936, complaining of marked dorsal curvature of the penis. Three years previously, he had first noticed burning pain in the penis and groin when sitting or when touched by the clothing. This continued for two years, when he observed a node on the dorsum and noticed that in erection the penis curved to the left. Erection and coitus were very painful. Nine months before his admission to the Brady Foundation, the induration was removed by surgical operation and a course of x-ray treatment was given. The scar and the lateral curvature disappeared, but there was pronounced dorsal curvature. Physical examination revealed a cordlike thickening in the median dorsal aspect extending from the midportion of the corona, with a plaque 1 cm. wide extending down the sides about 0.5 cm. This felt like dense fibrous tissue, was not adherent to the skin, but was apparently attached to the septum and corpora. Under spinal anesthesia, the thickened fascia and scar tissue were excised. Convalescence was normal, and the patient was discharged twenty-one days later.

Case 3.—L. T., aged 30 years, entered the hospital on October 25, 1937. He complained of a progressive induration of his penis, causing it to to deviate to the left on erection. He had had two operations on his right hip. Physical examination showed an indurated area of fibrous consistency on the dorsal surface of the penis. The right hip was ankylosed. Under spinal anesthesia, the indurated tissue was dissected from Buck's fascia. The pathologic examination showed fibrous tissue without inflammatory reaction. There were no complications, and the patient was discharged on the eighth day.

Case 4.—E. B., aged 57 years, was admitted to the hospital on August 25, 1938, for the repair of bilateral inguinal hernias and the removal of indurated tissue on the dorsum of his penis, of about eight months' duration, which caused dorsal curvature of the penis on erection. He had had a sinus operation and a tonsillectomy seven and five years earlier. Physical examination revealed bilateral inguinal hernias, atrophy of the left testicle, and marked induration on the dorsum of the penis over the corpora cavernosa. Under spinal anesthesia, both hernias were repaired, and the indurated tissue on the penis was removed. Convalescence was normal and the patient was discharged on the sixteenth postoperative day. The pathologist's report showed Peyronie's disease.

Case 5.—R. D., aged 45, was admitted to the hospital on January 25, 1940, for the correction of a de-

formity of the penis resulting from a fracture twelve years before during coitus. An indurated mass formed at the site of the lesion, resulting in right lateral curvature on erection. He had had gonorrhea, without complications, twenty years before and a circumcision twelve years before. He had also had an appendectomy, a left herniorrhaphy, and a left varicocelectomy. Physical examination showed some enlargement of the prostate. There was a small indurated mass, about the size of a large pea, in the fascia of the right side of the penis. No deformity was noticeable in the flaccid state. The laboratory findings were not significant. The indurated area in Buck's fascia was removed under spinal anesthesia. Convalescence was uneventful except for slight headache, and the patient was discharged six days later.

Case 6.—J. L. de B., aged 53 years, was admitted to the Brady Foundation on January 27, 1942, complaining of a hard growth in the penis, curvature during erection, and painful coitus. He had first noticed a hard nodule on the median dorsal surface six months earlier; this gradually extended along the entire dorsal surface, resulting in a dorsal curvature during erection that made intercourse increasingly uncomfortable and, finally, almost impossible. The dorsal curvature was also noticeable on the first urination in the morning. He had had gonorrhea twice in youth but denied syphilis. He had also had pneumonia twenty-five years earlier; removal of a tumor over the sternum, followed by radium, twenty years earlier (no recurrence); severe arthritis of the right knee, of several months' duration, six years earlier, and more recent arthritis of the joints of one finger. Physical examination disclosed internal and external hemorrhoids and slight enlargement and induration of the prostate. Along the dorsum of the penis, from the coronary sulcus to the base, extended a subcutaneous, nodular, nontender, cordlike induration. The overlying skin was freely movable. The corpora cavernosa appeared atrophic. A tentative diagnosis of Peyronie's disease was made. The indurated area was removed under spinal anesthesia. There were no complications, and the patient was discharged on the seventh day. The pathologist's report showed hyalinized fibrous tissue from the dorsum of the penis.

Case 7.—R. J., aged 52 years, was admitted to the Brady Foundation on October 18, 1942. He had first noticed a swelling on the dorsum of his penis, associated with distortion of the penis upward, about two years before. This condition had gradually become worse until finally erections became very painful. Physical examination showed moderate arthritis of the right knee joint, and tender induration above the dorsum of the penis. Under spinal anesthesia, the indurated area was removed by plastic operation, the patient being discharged in excellent condition six days later.

Summary of Results

In this small series of 7 cases, it is to be noted that only one poor result has followed the operation described above. The reason for this failure is readily explained: A considerable area of Buck's fascia on the right side of the penis was involved, and all of the indurated tissue was dissected away. On the opposite side there was no involvement and the fascia was left intact. It is easily understood why there was a deviation in the opposite direction postoperatively.

The result in this case has convinced me that when there is extensive involvement of the lateral surface of Buck's fascia the operation is contraindicated.

In every case where the dorsal curvature resulted from fibrosis of the septum between the corpora cavernosa, with mesial involvement only of Buck's fascia, cure has been obtained by operation. Even if there is slight involvement of the dorsal surface of Buck's fascia, cure is obtained; but in the one case with extensive induration of the lateral wall of the fascia thus operated upon, the result was poor, and in such cases the operation is distinctly contraindicated.

Conclusions

Plastic induration of the penis (Peyronie's disease) is curable by removal of the fibrotic tissue of the septum between the corpora cavernosa unless there is too great involvement of the lateral wall of Buck's fascia.

Operation is inadvisable if the plaques of induration extend too far laterally on Buck's fascia, for a new deformity of the penis is thereby created.

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Of the tuberculosis found among men examined at the U. S. Induction Center in Massachusetts, 10 per cent were far advanced, 25 per cent were moderately advanced, and 65 per cent were early cases. This is exactly the reverse of the usual percentages among cases admitted to sanatoriums, of which 65 per cent are far advanced, 25 per cent moderately advanced, and 10 per cent are early cases.—DAVID ZACHS, M.D., *Mass. Tb. League News Bull., April, 1943*

RECONSTRUCTION FOLLOWING COMPLETE AVULSION OF THE SKIN OF THE PENIS AND SCROTUM

Report of a Case

LEON E. SUTTON, M.D., F.A.C.S., Syracuse, New York

INJURIES involving complete loss of the skin of the penis and scrotum present a problem in reconstruction. The surgeon is confronted with the necessity of making an immediate decision as to the procedure to be followed in an unusual type of case. The injury in these cases is usually caused by torsion. The clothing is caught in rapidly rotating machinery and is torn off, taking with it the skin of the scrotum or penis or both. In most of the cases reported shock and hemorrhage have been moderate or almost entirely lacking To avoid infection and contracture the defect must be covered, without delay, by some type of graft or flap. In whichever method is selected certain difficulties may be anticipated. In the present case the testicles were placed in thigh pockets and the penis was covered with an abdominal flap.

This type of injury has apparently increased in frequency with the mechanization of industry. Under the pressure of war production a greater incidence may be anticipated. Gibbs[1] reported the first instance of complete loss of the skin of the penis and scrotum in 1855. In reviewing the literature, Owens[2] found 34 cases, 13 of which reported complete loss of the skin of the penis and scrotum. All but two of these occurred in the present century.

Owens' case[2] (Fig. 1) was one of complete denudation of the penis and scrotum which occurred when the clothing was caught by a drive shaft. There was no suggestion of shock. The patient was seen eight hours after injury, at which time the testicles were buried in pockets made in the superficial fascia of the respective thighs, and the shaft of the penis was covered with a half-thickness graft from the skin of the arm. Owens' patient was not interested in the construction of a scrotum, and the testicles were left in the thigh pockets. Owens reported a good functional result in this case (Fig. 2).

Straatsma[3] had a similar case in which the injury was produced when the end of a rapidly rotating rod caught in the front of a man's trousers, resulting in complete loss of the scrotal and penile skin, together with one testicle. He applied thick split grafts, both to the penis and to the remaining testicle with a good result.

The reasons for preferring an immediate repair in complete avulsion of the skin of the penis and scrotum are obvious. If the patient is seen within ten hours after injury and the wound can be properly prepared by débridement and irrigation, a heavy frosting of sulfonamide powder may be applied, the posterior perineum closed by sliding flaps from the adjacent thighs, the testicles buried in thigh pockets, and the penis covered with a split graft or placed beneath an abdominal flap.

In the case to be described not only the skin of the penis and scrotum had been torn off but the hair-bearing skin over the pubis was also missing. Since the abdominal skin above the wound carried very little hair it was decided to utilize this area for the formation of a flap to cover the shaft of the penis.

Case Report

E. F., a mechanic, aged 35, was admitted to the University Hospital, December 1, 1942, at 4:50 A.M. He was injured thirty minutes before admission. As he bent over to pick up a tool the end of a rapidly rotating rod, projecting from a lathe, caught the front of his trousers. The trousers, underwear, and all the skin of the penis and scrotum were removed almost instantaneously. He stated that he felt very little pain and that there was almost no bleeding.

When examined at the hospital, he was fairly comfortable, although no narcotic had been given. Pulse and blood pressure were normal. He was 5 feet 5 inches tall and weighed about 240 pounds; he was muscular but fat. A sterile saline dressing had been applied to the wound. On removal of this dressing the wound appeared grossly clean and very little blood was seen. All the skin and superficial fascia of the perineum were gone from a point 1½ inches above the root of the penis almost to the anus and from one thigh to the other (Fig. 3). The penis and scrotum looked as if the first step in a careful dissection had been done. The deep fascia of the penis was completely exposed to the corona, only a small piece of the frenum remaining. The testicles were retracted, the left more than the right, and were covered only by the cremasteric fascia.

Four hours after admission, no sign of shock having appeared, the patient was operated upon under general anesthesia. After excision of the wound edges and irrigation with saline, a perineal urethrotomy was done, using a retention balloon catheter. A pocket was made for each testicle in the superficial fascia of the corresponding

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 5, 1943.

From the Division of Plastic Surgery, Syracuse University, College of Medicine and the University Hospital.



FIG 1. Dr. Neal Owens' case before operation. (Courtesy of Dr. Owens and *Surgery*).



FIG. 2. Dr. Neal Owens' case—final result (Courtesy of Dr. Owens and *Surgery*).

thigh and fixed in position by a silk suture through the skin, tied over a piece of gauze. Before being placed in the pockets, the testicles were dusted with sulfanilamide powder. An incision was then made laterally in each inguinal groove and the lower abdominal skin was undercut for a considerable distance. The penis was stretched out and measured from the root to the corona. A 2-inch transverse incision was then made in the midline of the abdomen at the proper distance from the lower edge of the flap, the penis drawn upward under the flap, and the glans brought out through the transverse incision. The glans and remnant of the frenum were sutured to the edges of the incision, and a rubber strip was inserted for drainage. The large abdominal flap was then brought down and sutured to the thigh skin, closing all of the defect except that on the middle of the perineum from the penis to the anus. This was readily closed by undercutting the thigh skin slightly on each side and suturing the edges together around the perineal catheter (Fig. 4). Before suturing, all surfaces were frosted with sulfanilamide powder and drains were inserted. Slight infection occurred in the left inguinal incision. This cleared in three days with daily irrigation of saline followed by instillation of a suspension of microsulfathiazole.

The later stages of the reconstruction were done under local anesthesia. Flaps were raised and delayed on both sides of the abdomen and eventually brought around the penis to meet on the dorsal aspect (Fig. 5). The defects produced on the abdomen by raising these flaps were cov-

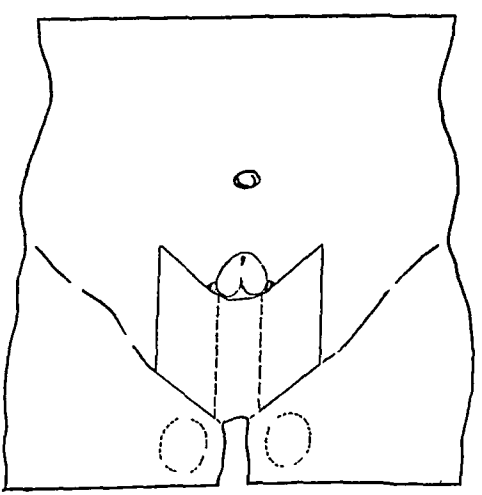


FIG. 5 Diagrams to show formation of abdominal flap to cover shaft of penis.



FIG. 3. Condition on admission to hospital. Denudation produced by rotating shaft rod.

ered with split grafts from the thigh. Two additional steps were necessary to thin down the flap on the penis. The skin on the penis is soft and



FIG. 6. Condition at the close of the last operation, sutures still in place.

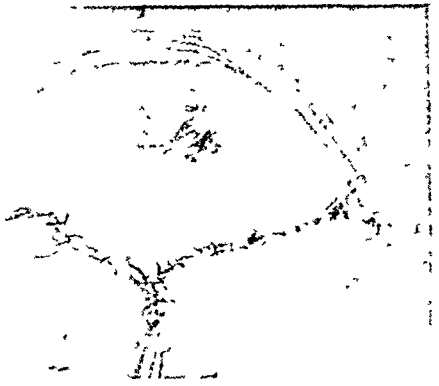


FIG. 4. Immediately after repair. Penis placed under abdominal flap. Testicles fixed in the superficial fascia of the thighs

reasonably flexible. It is still too early to be certain about function (Fig. 6). Construction of a scrotum was suggested but not favored by the patient.

Comment

The testicles were placed in thigh pockets because this seemed to be most reasonable. It takes only two or three minutes to form the pockets and fix the testicles in them without constriction or torsion of the cords. This new location apparently causes no symptoms. The testicles feel quite superficial and can be moved freely beneath the skin. If a new scrotum is to be made, this is best deferred for a later stage, although immediate construction of a scrotum has been attempted.[4] It would be possible to raise and delay a thigh flap over each testicle, later joining these flaps with the testicles included in such a way as to form a new scrotum.[5] One could not predict whether or not testicles would function better under such a covering than in the thigh pockets. A constructed scrotum would be thicker than normal and attached to the body by scar tissue, which might tend to crack and ulcerate. In the present case it is probably just as well that the patient refused this further step.

Whether the penis is covered with a graft or flap will depend, in part, upon whether or not the scrotal skin has been lost. Brown[6] applied a split graft to the penis in one case and a scrotal flap on another occasion. Owens[2] used a double pedicled flap to cover a defect on the dorsum of the penis. Benedict[7] advised single pedicled scrotal flaps cut parallel to the blood supply without including the dartos muscle. If the scrotal skin is not available, the penis must be covered with a graft or flap from the thigh,[8] groin,[9] or abdomen. A graft is probably preferable if one can cut a single, rather thick graft



FIG. 1. Dr. Neal Owens' case before operation. (Courtesy of Dr. Owens and *Surgery*).



FIG. 2. DR. Neal Owens' case—final result (Courtesy of Dr. Owens and *Surgery*).

thigh and fixed in position by a silk suture through the skin, tied over a piece of gauze. Before being placed in the pockets, the testicles were dusted with sulfanilamide powder. An incision was then made laterally in each inguinal groove and the lower abdominal skin was undercut for a considerable distance. The penis was stretched out and measured from the root to the corona. A 2-inch transverse incision was then made in the midline of the abdomen at the proper distance from the lower edge of the flap, the penis drawn upward under the flap, and the glans brought out through the transverse incision. The glans and remnant of the frenum were sutured to the edges of the incision, and a rubber strip was inserted for drainage. The large abdominal flap was then brought down and sutured to the thigh skin, closing all of the defect except that on the middle of the perineum from the penis to the anus. This was readily closed by undercutting the thigh skin slightly on each side and suturing the edges together around the perineal catheter (Fig. 4). Before suturing, all surfaces were dusted with sulfanilamide powder and drains were inserted. Slight infection occurred in the left inguinal incision. This cleared in three days with daily irrigation of saline followed by instillation of a suspension of microsulfathiazole.

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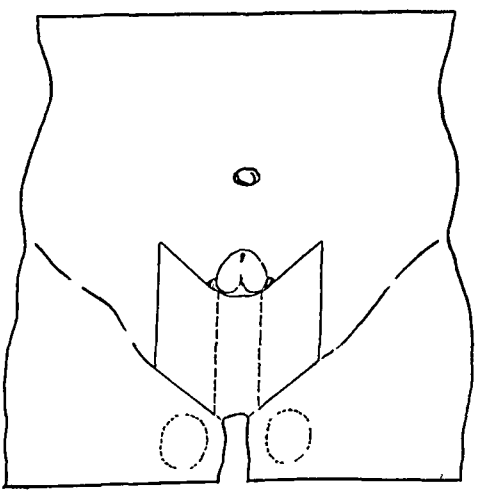


FIG. 5 Diagrams to show formation of abdominal flap to cover shaft of penis.

ECZEMA VACCINATUM

Report of a Case

FRANK C. COMBES, M.D., and HOWARD T. BEHRMAN, M.D., New York City

WITH the increased number of men in the military service, there has been a corresponding recent rise in the number of vaccinations performed. Every soldier is vaccinated shortly after his induction into the Army. It is of the utmost importance that any soldier with cutaneous disease should be carefully isolated from those recruits who have recently been vaccinated. As yet, there have been no untoward effects, and so this case of eczema vaccinatum in a civilian is reported as a reminder and a warning against vaccination in the presence of cutaneous disease.

Case Report

History.—A white man, aged 24, was admitted to Bellevue Hospital on February 3, 1942. His chief complaints were weakness and a "rash" on the face. He had been treated in several clinics since 1937 for folliculitis of the bearded region of the face.

His general health was good. He had had no previous serious illness. He had been vaccinated at the age of 6 with a good "take." There were no subsequent vaccinations.

On January 25, 1942, the sister and niece of the patient were vaccinated in preparation for entering school. Both children developed good "takes." The patient recalled numerous contacts with the children during this period. On February 1, 1942, he noticed several small "blisters" on his upper lip and involuntarily scratched and ruptured some of them. When he awoke the next morning, he had a chill and noticed that his face was extremely red and swollen and covered with numerous blisters. The patient was admitted to the hospital on the following day.

Examination.—The patient was acutely ill. The face was erythematous and severely edematous. It was covered with numerous discrete and confluent vesicopustules and pustules, many of which were umbilicated. The eyelids were so edematous that they could not be opened. The lips were extremely swollen. The cervical glands were considerably enlarged and tender. A few small vesicopustules were present on the neck and the right cubital space. The temperature was 103.4 F.

Laboratory Data.—Urinalysis showed the presence of albumin (2 plus), sugar (1 plus), and 1 to 2 red blood cells. The albuminuria and glycosuria subsequently disappeared. The leukocyte count was 13,200 with 75 per cent of polymorphonuclear neutrophils, 15 per cent lymphocytes, and 10 per cent nonsegmented cells. Blood cultures were negative. The Wassermann reaction of the blood was negative.

Material from vesicopustules and pustular lesions was examined. Microscopic examination of this material—using the Giemsa stain—was suggestive of but not definite for Guarnieri's bodies. To prove the presence of virus, however, 3 rabbits were inoculated.

On February 5, 1942, rabbit A was scarified on the right flank and pustular material from the patient was applied. Within three days, there was diffuse erythema, swelling, and papule formation. On the fifth day there was a distinct vesicle with beginning pustule formation. The virus was harvested at this time. On the seventh day crusts formed and the lesion progressed to normal scar formation.

On February 5, 1942, the right cornea of rabbit A was cross-hatched, and purulent material from the patient was instilled, the left cornea being used as a control. On the second day the right cornea became dull and lusterless, the left eye remaining normal. On the third day there was an inflammatory response with exudation and thickening of the lids, the cornea becoming clouded. On the fourth day the lesions were more severe, with definite corneal opacity. The corneal epithelial cells were examined for Guarnieri's bodies, but the results were only suggestive and not definite.

On February 5, 1942, pustular material from the patient was injected intratesticularly into rabbit A. On the second day there was edema, induration, and protraction of the testicle. On the fifth day the lesion became progressively worse. The testicular involvement subsided in ten days.

Rabbit B was used as a control. It was inoculated with stock calf lymph virus, obtained from the Board of Health. The development of the lesions was the same as in rabbit A. On the fifth day the virus was harvested.

On February 12, 1942, tests were performed to determine specific immunity and antibody production. Three sites on the left flank of rabbit A were used. The first site was scarified, and the virus from rabbit B was applied to the scarification. No lesions appeared. The second site was scarified, and virus harvested from rabbit A two days previously was applied. No lesions developed. The third site was scarified and the virus from the patient was applied. Again, no lesions appeared.

Three sites were then scarified on rabbit B (previously vaccinated). These sites were treated, respectively, with the viruses from rabbits A and B

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 6, 1943.

From the Department of Dermatology and Syphilology, New York University College of Medicine, and the Third Medical (New York University) Division, Bellevue Hospital, service of Dr. Frank C. Combes.

Valuable assistance in this study was rendered by Dr. Abraham Rubinowitz, resident in dermatology, Bellevue Hospital.

large enough to cover the penile shaft and be fairly certain that a complete "take" will result. All grafts contract according to their thickness, but the thicker grafts require more accurate and prolonged pressure. Grafts have very little elasticity, while a flap, properly applied and thinned, will not shrink appreciably and should be more elastic than a graft. The graft requires but one operation but a flap involves a series of operations and longer hospitalization. A graft carries no hair with it, while the presence of some hair on an abdominal flap is unavoidable. Whichever method of covering the penis is selected, the result will depend largely upon the judgment and experience of the surgeon.

Summary

Complete avulsion of the skin of the penis and scrotum calls for immediate covering of the defect either by a graft or flap. It is probably best to place the testicles in pockets formed into the thighs and later to consider the construction of a scrotum. Split grafts may be applied to the penile shaft if the surgeon is experienced in the use of this type of graft. If he is in doubt, the penis may be placed under an abdominal flap with the glans protruding through a transverse incision. This permits later formation of an abdominal flap, or the penis may be removed from beneath the flap and grafts applied if that is desirable.

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SPECIALISM IN ANESTHESIA

Hewer has called attention to the decreased hazard to the anesthetized patient when the anesthetist limits his work to a particular field.

In most anesthesia departments the personnel is trained to use the anesthetic which is specially indicated. If the particular one chosen is unsatisfactory there is no hesitation in changing to one or more other agents to produce an even anesthesia. Such training develops capable anesthetists with a broad experience. In the hands of such an anesthetist good results are bound to ensue.

However, as Hewer remarks, "It is not exaggeration to say that many of the surgical procedures carried out at the present time require a very high degree of skill from the anesthetist. For example, if a patient is to have a partial thyroidectomy for toxic goiter, a lobectomy for bronchiectasis, or a partial gastrectomy for carcinoma, his chances of survival are definitely greater if his anesthetist has had experience in the various problems connected with the procedure.

There is an added factor of safety in such instances. The anesthetist who is a specialist practices in a clinic in which the surgeon also is a specialist. Such teamwork contributes to a low mortality.

In one clinic, because of the availability of an anesthetist highly skilled in continuous spinal anesthesia, the surgeon has developed a technique for removal of advanced cancer of the bowel in poor risks. This has brought comfort to many an aged patient.

The anesthetist in a chest clinic will develop a special technique for carrying the patient through the operation on an even level and facilitating the surgeon's work.

Perhaps the most outstanding example of successful anesthesia by the specialist is that by Hingson and Edwards in the use of continuous caudal anesthesia in obstetrics. This has assumed such importance that its advocates have warned of the necessity for special training.

In medicine, every specialist should have a basic experience in general practice. This can be applied quite definitely to the anesthetist. He should be familiar with the advantages and hazards of all available agents. If the special field of his work restricts the choice of agents, his results will undoubtedly be more outstanding through perfecting his technique in the one most desirable.

Yes, there is room for the specialist even within the special field of anesthesia.—*Editorial by Howard Dittrick, M.D., in Anesthesia and Analgesia*

TRANSCRIBED RADIO HEALTH PROGRAMS

The July 10 issue of the *Journal of the American Medical Association* carried an announcement of electrically transcribed radio broadcasts for use by county or state medical societies or by approved local groups in their communities. On approval of the local medical society, these transcriptions will be lent to radio stations, health departments, voluntary health agencies, parent-teacher organizations, or other community groups.

SUMMER

I wish I were beneath a tree
A-sleeping in the shade
With all the visits I have to make,
Made.

I wish I were beside the sea
Or sailing in my boat
With all the records I have to write,
Wrote.—MURIAL ANNESS, in *Flashes*

vaccine virus in all probability reaches every organ in the body. It is this hematogenous dissemination of the virus which is responsible for generalized vaccinia. This disease, frequently confused with eczema vaccinatum, is also a vesicopustular exanthem. Constitutional symptoms vary with the extent of the eruption and may be absent. The distinguishing feature is that generalized vaccinia appears on a healthy skin whereas eczema vaccinatum occurs only on previously diseased skin. In addition, generalized vaccinia is due to hematogenous dissemination of the virus from the individual's own vaccination site. Eczema vaccinatum, while it may also occur from hematogenous dissemination of the virus from the individual's own vaccination site, may, and usually does, follow accidental contact of the diseased skin with someone else's vaccination site, with subsequent local and hematogenous spread of the virus.

Eczema Vaccinatum

Tedder,[3] in an excellent survey, reviewed many of the cases reported as Kaposi's varicelliform eruption and pustulosis vacciniformis acuta. He showed conclusively that the clinical features of these diseases and of eczema vaccinatum are identical. The failure to obtain a history of exposure to the vaccine virus was, in most cases, the only reason for not identifying the former two conditions.

In practically all of the cases of eczema vaccinatum that have been reported, the patient had some pre-existing dermatosis. Careful questioning always elicited a history of exposure to some vaccinated person, from a few days to several weeks before the outbreak of the vesicles. The vesicles suddenly appeared on the previously diseased skin, although a few invaded the surrounding normal skin and even became generalized. They were at first filled with clear serum and then exhibited the characteristic change of vaccination pustules, to become successively purulent and umbilicated. These pustules occasionally reappeared in crops from several days to a week after the initial outbreak. The patients were seriously ill with high fever, chills, and pains in the joint. Even death, caused by general sepsis, has been reported.

Guarnieri's Bodies

Since Guarnieri, in 1892, claimed that certain inclusions present in the epithelial cells of the lesions of smallpox in a rabbit's cornea were parasitic, much attention has been given to their study. They are commonly referred to as "vaccine" or "Guarnieri" bodies, yet opinions still differ as to their nature and significance. They have been referred to as "protozoa," "degeneration products," and as "characteristic vaccinal bodies." They may be studied for a short time in vivo by rapidly excising an inoculated cornea, spreading it on a shallow agar plate, and dropping a thin cover-glass over it. The structural bodies are very clearly differentiated from the rest of the cell contents. Guarnieri showed that if the cornea of a rabbit were scarified and inoculated with variola or vaccine lymph, in about thirty hours epithelial thickening occurred, which in three days became ulcerated; and if the ulcer were studied microscopically, small, variously shaped, deeply-staining nuclear bodies were found lying in the epithelial cells.

Most animals are more sensitive to vaccinia than to variola. The epidermis of rabbits, for instance, shows a typical eruption after inoculation with vaccine virus, while material from smallpox eruptions produces only diffuse redness. The corneal "take," however, is similar in intensity in both instances. Rabbits which have received several injections of virus intravenously or subcutaneously develop antivaccinal bodies which are specific for vaccine virus. The presence of the antibodies may be demonstrated by complement-fixation, flocculation reaction, or by neutralization experiments in vitro.

The vaccine virus is prepared at present by propagation from calf to calf, with an intermediate passage through rabbits to prevent loss of potency. The finished product is stored at a low temperature and treated with phenol and glycerin to free the virus from bacteria. The precise role of culture virus and intradermal methods of smallpox vaccination cannot yet be regarded as properly established.

The Paul Test

The test first described by Paul,[4] and now named after him, is of value in the diagnosis of lesions which cannot be differentiated on clinical grounds. The test is performed as follows: The lesion is cleaned with alcohol and opened under aseptic technic. The fluid content is then mounted on a cover slip. If the vesicular or pustular stages are past, crusts may be removed. The secretion is thoroughly mixed in a solution of physiologic sodium chloride. The eyes of a rabbit are anesthetized with cocaine and then scarified with a fine needle in both vertical and horizontal directions. A drop of the emulsion is rubbed over the scarified cornea of one eye, the other serving as a control. Within thirty-six hours, the cornea shows definite changes if the emulsion contains variola virus. Minute elevations which cannot be wiped off are present along the scarified paths. After twelve hours, the rabbit is chloroformed and the eyes enucleated.



FIG. 1. Appearance of the face shortly after the patient's admission to Bellevue Hospital on February 3, 1942.



FIG. 2. Appearance of the face on March 23, 1942.

and from the patient. Again, no lesions appeared in any of the scarified areas.

Rabbit C (control rabbit) was then scarified with the virus from rabbits A and B. The virus was subsequently harvested from these lesions. This rabbit was also scarified with the virus from the patient. This site developed typical papules, vesicles, and pustules, thereby indicating that the virus was viable and infective.

From these experiments, it was evident that the virus from the patient's lesions (like the stock calf lymph supplied by the Board of Health) gave positive immediate transfer and a negative delayed transfer reaction. Both viruses had also produced specific and cross immunity to one another, and were practically identical in immunizing reactivity.

Course.—On the second day in the hospital, the patient was given 2 Gm. of sulfanilamide every six hours. Locally, he was treated with bichloride of mercury wet dressings (1:5,000) and soap poultices for the removal of crusts. As the lesions healed, 10 per cent sulfathiazole cream was applied.

The patient was acutely ill for the first few days. A number of doses of sulfanilamide were refused by the patient, and nausea and vomiting occurred intermittently. The temperature gradually subsided over a period of days. The pustules on the face became confluent and covered the entire face with a thick, purulent crust. The lesions gradually dried, both on the face and on the right cubital space. After eleven days, the patient was sent to the Willard Parker Hospital.

He was seen in the clinic six weeks later. At this time, the skin showed pitting and the underlying sycosis vulgaris of the affected region. A vaccination performed at this time showed an "immune reaction."

Postvaccinal Eruptions

Postvaccinal eruptions have been classified by Paschen[1] as follows:

A. Eruption due to contact infection by vaccine virus.
   1. Secondary infection near the original site due to spread of the virus by way of the lymphatic vessels.
   2. Secondary accidental vaccination at distant sites; no previous cutaneous disease.

B. Eruptions due to hematogenous spread.
   1. Exanthems directly following vaccination.
   2. "Postvaccinal" exanthems occurring at the time of pustulation (usually scarlatiniform, morbilliform, or purpuric).
   3. True generalized vaccinia; no previous cutaneous disease.

This classification is self-explanatory. The sole eruption which requires clarification is true generalized vaccinia.

It is well known that the virus in a case of variola is definitely disseminated by the blood stream. In recent years, it has been proved repeatedly that the virus is also hematogenously disseminated following vaccination. Gins[2] and his coworkers isolated the virus from the throat and tonsils of individuals vaccinated several days previously. Paschen cited the work of numerous investigators who showed that the

VARIATIONS IN THE RESPONSE OF DIABETICS TO INSULIN THERAPY

Clinical Guides to Therapy

MAJ. MILTON B. HANDELSMAN, (MC), AUS

THE therapeutic use of insulin involves more than a knowledge of the pharmacologic actions of insulin; it also requires familiarity with the types of responses with which patients who have clinical diabetes react to insulin. Kepler[1] pointed out that different patients react to protamine zinc insulin in various ways. He found that, in general, middle-aged, obese, and senile patients with diabetes mellitus were adequately controlled with a single small dose of protamine zinc insulin, whereas patients who were asthenic or young at the onset of the diabetes were more difficult to treat.

Several factors determine these varying responses on the part of diabetics to insulin therapy. Mosenthal[2] has shown that the blood sugar of some patients falls while fasting, whereas in others it continues to rise even when no food is eaten. In line with this observation, Reveno[3] noted that diabetics whose blood sugars fall when they exercise and abstain from food for several hours either require no insulin or require only a single dose of protamine zinc insulin. On the other hand, when the blood sugar does not fall under such conditions, more than one dose of insulin is needed to control the patient.

Another factor to be mentioned in a consideration of the response of diabetics to insulin therapy is that some patients under treatment eventually recover part of the lost ability to utilize carbohydrate. Haist, Campbell, and Best[4] and Lukens and Dohan[5] have shown experimentally that insulin can bring about a restitution of the function of the islands of Langerhans when these are not irreparably damaged. Whereas it was once thought that the recovery of carbohydrate tolerance depended on having normal blood sugar values during treatment, Mosenthal[6] has demonstrated that with the use of protamine zinc insulin, remarkable improvement in a patient's tolerance for carbohydrate can occur even when the blood sugar is constantly elevated. In treating diabetics, this improvement is noted by the fact that less insulin is needed for a patient as the treatment proceeds.

The reverse of the above is also true in some cases, and the islands of Langerhans in a patient may become weakened. Experience with juvenile diabetics has led Priscilla White[7] to conclude that the course of the diabetes in such patients is progressive. Colwell[8] claims that the diabetes of *all* patients becomes worse with time (except in senile patients) and that there is a demand for more insulin as the duration of the disease becomes longer. He believes that the improvement in carbohydrate tolerance mentioned above as occurring in older patients is merely a temporary response to treatment. The experience in this and other clinics does not entirely agree with that of Colwell, as will be discussed later. However, in younger diabetics it is agreed that an increasing dosage of insulin is needed as the disease continues.

Factors such as these are not sufficiently emphasized in the insulin therapy of clinical diabetes. The administration of insulin has for the most part followed empirical lines and the current tendency is to classify diabetics into mild, moderate, and severe cases, depending on the amount of insulin needed. Too little consideration is given to the fact that even with dietary treatment alone, the blood sugar tends to fall in some cases while it does not fall in others, or that carbohydrate tolerance improves in some and becomes worse in others. These responses on the part of patients are not only important from the prognostic point of view but they also determined to a great extent the dosage of insulin required as well as the degree of diabetic control that can be attained. In a recent publication from this clinic[9] it was shown that the age of onset of the diabetes, the presence of obesity at the onset, the time when treatment is instituted, and the degree of cooperation of the patient in dieting are clinical features that can serve as guides in estimating the response of patients to dietary treatment. Studies[10] concerning the behavior of the blood sugar—both in the fasting state and after glucose administration—showed that in the obese, middle-aged diabetic, the hyperglycemia tends to be reduced to normal, or nearly normal, when a reduction of the patient's weight was effected even without the use of insulin. This group of patients also showed a remarkable ability to regain tolerance for carbohydrate after such weight reduction. Too long a delay in the recognition and treatment of the diabetics in this group led to the progression of the diabetes, particularly when the

From the Diabetic Clinic of the Long Island College Hospital and the Department of Medicine, Long Island College of Medicine, Brooklyn.

With the assistance of Miss Geraldine Kreem, volunteer dietician.

When the enucleated eye is placed in sublimate alcohol, a variola-infected cornea will show isolated or confluent, intensely white, opaque elevations. This phenomenon, according to Paul, is pathognomonic for variola. In addition, histologic sections of the eye show the presence of Guarnieri bodies.

Conclusions

A review of the literature on generalized eruptions due directly to the vaccine virus yields very few cases from the American records.

Because of the recent increase in the number of vaccinations performed, especially on men entering the military service, the danger of vaccination in the presence of cutaneous disease should be emphasized.

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Discussion

Dr. Maurice J. Costello, *New York City*—I want to congratulate Dr. Combes and Dr. Behrman on their excellent presentation of the report of a case of eczema vaccinatum observed in a patient on the dermatologic wards at Bellevue Hospital. They proved the diagnosis by the positive results obtained by the successful inoculation of a laboratory animal with the disease, and by finding Guarnieri bodies.

I believe that eczema vaccinatum or multiple auto-inoculation with the virus of vaccinia occurs principally in infants and young children suffering from eczema, but it also occurs in others with impetigo, furunculosis, or other pruritic dermatoses. It may even follow an accidental abrasion in a person with a normal integument. Even the mucous membranes of the eye may be affected, causing loss of vision. For this reason the term "eczema vaccinatum" is misleading. The instruction given to patients who have been vaccinated not to cover the site of the vaccination with a protective dressing is the principal reason for the increase of this severe and at times lethal complication. It is important to keep the site of the vaccination covered with a sterile dressing, during the entire course. This precaution is especially necessary in young children. It is important to postpone vaccination in a child with eczema until he has a remission of the disease.

When the auto-inoculations are confined to the eczematous areas, their true nature may not be clinically apparent because of the accelerated type of reaction of the pock and the masking of these lesions by the eczematous process.

During the past year I have seen 4 patients with eczema vaccinatum, which indicates that more cases occur than are recognized or reported. One was in a young woman admitted to Willard Parker Hospital, who had been vaccinated at a time when she was suffering from a severe pruritus vulvae. She developed about twenty pea-sized typical umbilicated vesicopustules, surrounded by an erythematous halo on the labia majora, labia minora, the vagina, and the perineum. There was painful edema of the vulva and vaginal discharge. She had moderately severe constitutional reaction accompanied by fever, which lasted about four days.

In addition to the postvaccinal eruptions classified by Paschen, and quoted by the authors, I may add another type of eruption—viz., a toxic bullous dermatitis resembling erythema multiforme bullosum, without the characteristic localization of the latter.

Because of the severe constitutional symptoms occurring in generalized vaccinia, this disease must be differentiated from variola, which it may closely resemble. It may be mistaken in children for severe generalized impetigo contagiosa, accompanied by fever and constitutional reaction.

Philip R. Trommer, in a letter to the *Journal of the American Medical Association*, March 20, 1943, advises taping the thumbs with adhesive and the wearing of rubber gloves to prevent alcoholic dehydration and auto-inoculation of the fingers when performing mass vaccinations, as was necessary in the recent outbreak of smallpox in Pennsylvania.

He and his associates had the unpleasant experience of developing cowpox vaccinations on the thumbs, which required surgical attention. Before undertaking this work, physicians should first be vaccinated.

Rivers and Ward have given intradermal vaccinations against smallpox which produce no pustule, crust, or scar. A high percentage of takes with this method has been reported by Dr. Donald D. Posson and Dr. Kaiser of Rochester, New York. This method is particularly applicable in children with eczema or in normal children who have other members of the family suffering from pruritic dermatoses. This method offers a better means of prevention of multiple auto-inoculations in these children.

When one considers the millions of vaccinations performed every year, this complication of multiple auto-inoculations must be relatively rare. With greater care its occurrence can be reduced further, eliminating that which, in the early days, was probably a stumbling block to universal acceptance of vaccination.

One thing the depression taught us: that human lives cannot be departmentalized—ignorance, poverty, and ill health are not isolated problems; too often they have proved themselves a vicious circle of cause and effect.

—Paul V. McNutt

TABLE 2.—PATIENTS REQUIRING LESS THAN 30 UNITS OF INSULIN DAILY

Either the 24-hour urines had glycosuria or the fasting blood sugars were elevated above 150 mg. per 100 cc.

Clinical state at onset	Status at present	Name	Age at onset (Years)	Duration of diabetes (Years)	CHO in diet (Grams)	Cooperation in dieting	Insulin (PZI units)	Glucose in urine	Last fasting blood sugar
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		CA	52	5	157	Poor	*10–0–0*	*0*	*195*
		MA	58	6	185	Fair	12–0–0	0	266
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		SB	55	9	150	Fair	15–0–0	0	183
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Table 2 includes 16 patients of various age and weight groups requiring less than 30 units of insulin daily. Their diabetic control was only moderately good or poor.

Table 3 includes 16 patients of various age and weight groups requiring more than 30 units of insulin daily. Their diabetic control was generally poor.

An analysis of the clinical results in light of the insulin requirements should reveal the severity of the diabetes in the groups of diabetics studied. Table 4 is the summary of the insulin requirements in the diabetic control of all the groups, as to age, weight, and duration.

The Obese and Over-Middle-Aged Group

In a recent publication[9] from this clinic, it was reported that dietary control brings about a remarkable recovery of carbohydrate tolerance in diabetics who are overweight and over the age of 40 years at the onset if treatment is instituted early in the course of the disease. However, very often treatment is delayed or neglected and the patient loses weight so that he is no longer obese when he consults the physician. Further reduction in weight is undesirable and insulin therapy is indicated. In this latter group of patients, the diabetes retains its mild character and, as Kepler[1] pointed out, a single small dose of protamine zinc insulin will adequately control the diabetes.

The fact that the mildness of the case and the small insulin requirements are related to the age and the presence of overweight *at the onset* of the diabetes is seen in Table 4. Of the 50 patients in this series, 34 were obese and over the age of 40 years at the onset of the diabetes, and 29 of these were controlled with a dose of insulin of less than 30 units.

Only 5 patients required more than 30 units of insulin. In addition, in Table 2 it can be seen that 3 patients receiving less than 30 units of insulin were very poorly controlled. Thus, 8 patients of the over-middle-aged, obese diabetics either required large doses of insulin or were badly controlled with smaller doses. A further scrutiny of the records of these eight patients reveals that four had diabetes for over eleven years (Table 3) and 3 of the patients (Table 2) did not cooperate at all in dieting. Thus in all the obese group there was really only one patient who required more than 30 units of insulin, the severity of whose diabetes was not adequately explained.

The roles of both cooperation in dieting and the reduction of the patient's weight are important in insulin therapy. Durkin and Fetter[12] have pointed out that if a diabetic patient remains obese, complete control of the diabetes is difficult even with large doses of insulin. The experience in this clinic is very similar. In Table 2 several obese patients are included whose urines usually

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The present study was undertaken to attempt to correlate the insulin requirements of patients with similar clinical factors as those mentioned above. Here insulin with diet was used.

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Fifty ambulatory patients were selected at random in the order that they presented themselves during several consecutive clinical sessions. Patients with infections, liver disease, hyperthyroidism, acromegaly, and pregnancy were not included. The only other basis of selection was that the patient had been under observation in the clinic for a period of at least one year. This was deemed necessary because the time a patient first presents himself to a physician for treatment, his ability to utilize glucose may be *temporarily* depressed because of complications. Joslin[7] (Chapter IX) expressly warns that a patient's diabetes should be expected to become milder after treatment has continued for some time. One year was considered adequate to cover this factor.

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Treated by diet alone..	49% approx.	51%
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TABLE 4.—Summary of the Insulin Requirements of the Various Clinical Groups

Age and weight at onset of diabetes	Status at present	Group well-controlled with small dose (PZI) (Table 1)	Group moderately controlled with small dose (PZI) (Table 2)	Group requiring 30 units PZI daily (Table 3)	Total number of cases
Patients who were obese and over the age of 40 years at the onset of the diabetes	Relatively recent* onset Weight reduced to normal or underweight	10	7	1†	18
	Relatively recent onset, but patients remained obese	1†	2	0	3
	Diabetes longer than 7 years' duration; patient now obese	0	3	2	5
	Diabetes longer than 7 years' duration; patient now thin	3†	3	2	8
Total		14	15	5	34
Patients who were *not* overweight and who were between 40 and 60 years of age at the onset	Patients of normal weight or underweight	2	0	3	5
Total		2	0	3	5
Patients under the age of 40 years at onset	Recent* cases	2	1	5	8
	Cases of longer duration	0	0	3	3
Total		2	1	8	11
Sum Total Cases					50

* "Recent" represents less than seven years' duration of recognized diabetes.
† These are "exceptions" to the classification as explained in the text.

suggests that the nonobese group, like the younger cases, may also be milder at the onset but progress rapidly so that large doses of insulin are required when symptoms appear.

Young Diabetics

In this small series, there were 11 patients whose diabetes was discovered before they were 40 years old. This group is too small to allow for a study of the nature of diabetes in young patients. It is, however, sufficiently large to be able to compare the known clinical behavior of this type of diabetes with the insulin dosage and degree of diabetic control found in the treatment of such individuals.

Eight of the 11 patients required more than 30 units of insulin. A closer study of these 8 patients (in Table 3) reveals wide variations not only in the magnitude of the insulin dosages required but also in the distribution and kind of insulin used. The degree of diabetic control that was obtained was poor in 6 of the 8 patients despite continued attempts to improve the results. Too energetic attempts to reduce the hyperglycemia led to frequent insulin reactions.

Only 2 patients* (Table 1) were excellently controlled with a single daily dose of protamine zinc insulin of less than 30 units. These patients were both treated within twenty-four hours of the onset of symptomatology, which probably contributed toward maintaining the excellent control.

These results are in line with the nature and course of the disease in younger patients as found in extensive studies of such individuals.[7] It has been shown that many cases are "mild" at the onset but that there is an inherent tendency for the disease to progress so that they rapidly become "severer." As in the older obese group of patients the progression is hastened by lack of cooperation in dieting, and the carbohydrate tolerance diminishes with the duration of the disease. The tendency for the diabetes to become worse is not checked by weight reduction, which played an enormous role in the older, obese patients. Some of the most important accelerators of the progression in the diabetes of younger patients are the transient intervening complications such as acidosis and infection; the carbohydrate tolerance of the older, obese diabetics tends to return to a normal status after complicating factors are removed. Another factor that influences the "severity" in younger patients is the endocrine influences such as growth; these are more stable in older patients.

A clinical course made worse by so many variable factors would of necessity lead to the large differences in insulin requirements found

* Since the compilation of the data, one of these two diabetics has had a serious infection. Subsequent to this, he has continued to require more than 30 units of insulin daily.

TABLE 3.—PATIENTS REQUIRING MORE THAN 30 UNITS OF INSULIN DAILY

Clinical status	Name	Age at onset	Weight at onset	Weight at present	Duration of diabetes (Years)	CHO diet (Grams)	Cooperation in dieting	Insulin (PZI units)	Glucose in urine	Fasting blood sugar (mg. %)	Insulin reactions
Under the age of 40 years at the onset	RI	14	Obese	Normal	4	190	Good	32-0-0	0	93	Plus
	CH	16	Thin	Thin	5	200	Fair	28+14R-0-0	1-plus	164	....
	MA	17	Thin	Obese	1	180	Fair	45+30R-0-0	0	149	Plus
	SC	26	Obese	Obese	3	200	Poor	45-0-0	3-plus	264	....
	GA	29	Obese	Normal	3	225	Poor	40-0-0	3-plus	310	....
	IS	35	Obese	Normal	17	125	Good	30R-0-20R	1-plus	250	Plus
	ST	32	Obese	Normal	19	230	Good	70-0-0	2-plus	302	Plus
	KA	39	Obese	Normal	20	150	Fair	45-0-0	1-plus	200	Plus
Between the ages of 40 to 60 years but *thin* at onset	KO	42	Thin	Thin	3	215	Good	37-0-0	1-plus	205	....
	FOX	41	Thin	Thin	2	210	Fair	32-0-0	3-plus	282	....
	FOS	51	Thin	Thin	4	180	Fair	15R-10R-10R	2-plus	198	....
Obese and over the age of 40 years at the onset. Diabetes more than 7 years' duration	SP	45	Obese	Obese	11	165	Fair	22R-0-12R*	0	252	Plus
	TH	56	Obese	Normal	16	200	Good	32R-0-12R*	0	295	Plus
	SA	65	Obese	Obese	12	180	Fair	40+20R-0-0	1-plus	236	Plus
	ME	44	Obese	Thin	16	185	Bad	33-0-0	3-plus	266	Plus
Obese and over the age of 40 at onset; onset recent	IN	43	Obese	Normal	4	230	Good	37-0-0	2-plus	147	....

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were free of glycosuria but whose fasting blood sugars were always elevated. This disparity has often been attributed to a "high renal threshold" for sugar excretion, but the indications are that the marked hyperglycemia is somehow related to the fact that these patients have not reduced their weight. Again only one exception was found; only one obese patient with diabetes of recent onset, who remained obese, was excellently controlled. Thus, while exceptions occur, they are not numerous. Another variable factor to be considered is the promptness with which the disease is recognized and treated. The above exceptional case was discovered during a routine examination, and the patient demanded a large diet from the onset. Insulin was given immediately, possibly accounting for the excellent result.

There were 13 diabetics (see Table 4) who were in the same age and weight groups at the onset but whose diabetes was over seven years' duration. Only 3 could be well controlled, and these were patients who had lost weight originally and were cooperative. Again the remainder of the patients had elevated fasting blood sugars regardless of whether or not the urines were free of glucose. It can be seen in Tables 2 and 3 that unmodified insulin was used in several patients. In all of these cases protamine zinc insulin had to be discontinued either because it gave rise to frequent insulin reactions or because it did not control the glycosuria properly. The duration of the diabetes seems to influence the response of the patients to insulin.

From the foregoing remarks, one should expect that among those patients (with uncomplicated cases) who were over the age of 40 and who were obese at the onset, the largest requirements for insulin and the poorest diabetic control would occur in those who neglected to treat their diabetes for many years, who remained obese, or who did not stay on dietary regimens. All the patients of this group in (Table 3) requiring more than 30 units of insulin had such past histories.

Nonobese Adult Diabetics

Joslin's data[7] shows that approximately 15 per cent of all diabetics whose illness manifests itself until they are over the age of 40 are not obese at the onset. As Kepler[1] pointed out, thin patients in whom diabetes was first found after the age of 60 have extremely mild cases, while those under 60 are usually difficult to control with small single doses of protamine zinc insulin. Durkin and Fetter[12] also emphasize the fact that larger doses of insulin are needed in the thin, young adult. For this reason all nonobese diabetics whose deranged glucose tolerance first appeared when they were between the ages of 40 and 60 have been separated from the group over sixty years.

Only five such patients occurred in this series: of these, two had "mild" and three had "severe" cases. The small number of such cases reported here does not allow any conclusions to be drawn. However, a careful perusal of the patients' charts revealed that the two patients who were well controlled were found by routine urinalyses and had had practically no symptoms. This

trol that can be attained closely parallels this course in the various types of patients.

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"OVERTIME" EXHAUSTION

In these days of war production, when practically every manufacturing plant in the nation is engaged in war work, the question of manpower is a most important one. We simply do not have enough of that commodity, so other expedients must be resorted to, even to the extent of employing thousands of women for work in departments that hitherto had been deemed man's domain. We have discussed "women in industry" on many occasions, but our present concern has to do with the hours of employment of both sexes.

Our newspapers daily carry ads in their want-ad sections, some of them of the display type, and in most of which the item "time and one-half for overtime" is prominently displayed. And this "overtime" thing is quite an allurement. Most folk want to make money, and if by the exercise of an extra day, plus an added hour or two to the regular day's work, this pay check may be materially increased, too many of these employees proceed to do that very thing.

Physicians in the industrial section of Indiana, as well as in other states, are quite familiar with these matters. We all see men and women who rapidly are becoming physically exhausted. A man of over fifty recently came to our office for an eye examination. He had been ordered to have correcting lenses inserted in his safety goggles. The man appeared to be tired—he looked tired; he acted as if that was his chief ailment. On questioning him we learned that he had been working ten to eleven hours per day seven days per week. He was a skilled machinist, presently engaged in work that requires minute attention and concentration.

The man was tired; what he needed more than anything else was a respite from his daily toil, a complete relaxation. For him a vacation was "out"; the equipment he was then fabricating was a vitally important factor in the conduct of the war; it had to be produced, and he was the only man available for his particular kind of work.

A young woman employed in another essential industry, much of whose work was typing, complained of being tired, dizzy, subject to headache, et cetera. On questioning we learned she had been doing overtime work; for almost two weeks she had been at her typewriter for some ten or eleven hours per day, with but an occasional short rest period during those hours.

A man, the head of a vital department in a large war industry, came in for treatment and declared that he was "all in." We learned that for more than seventy-two hours he had been working. From the actual fighting front he learned that a huge war machine manufactured by his plant had a vulnerable spot—not a large one, but nevertheless vulnerable. By staying on the job for about three days he and his crew "licked" the thing; the instrument of death was no longer vulnerable in that small spot. We might cite scores of similar cases, involving those in executive capacities and those in minor roles in our plants.

Fatigue is a danger sign regardless of what form of work we may engage in, and he who heeds that warning does so wisely. Neglect of these frequent warnings means certain disaster, and it is the man of medicine who must interpret these signs. Especially is this important in the man of middle age; we again refer to one of the best medical talks we ever heard, "The Heart of the Man at Fifty."

These people come in complaining of dizziness, headaches, shortness of breath, perhaps a backache, fluttering of the heart, or just a "tired-all-over" feeling. They may tell you they get up in the morning about as tired as when they go to bed. *These folk are very sick.* They may not have a fever; they may not have definite pains of a diagnostic sort, yet they are *sick.* They must have medical attention. It is true that their pay check is two or three times the amount it was in prewar times; it is true that they can now indulge in such few luxuries as remain on the market and perhaps buy a new and larger home, but the fact remains that these folk are potential invalids, whether it be from a heart condition, a pulmonary affair, or from some other cause.

These workers must be told to slow down; their employers must be counseled properly. Already organized medicine has recognized these things and our Industrial Health committees are doing a good job of solving the many problems presented. Money, after all, is not the most important thing. It will require a lot of time and work ere these committees can do their job, but it is being done and being done well.

We are very proud of the part the Indiana State Medical Association is playing in this work; few states have a better Industrial Medicine setup; few states have a program so advanced as ours. Our committee has gone into the byways, one might say. They not only discuss and act on such things as plant fatigue, plant working conditions, et cetera, but they make a study of other highly important matters, such as "how soon one should return to work after an appendectomy," "how soon one should return to work after having had a course of sulfa drugs," et cetera. All of these things are mighty important and enter into any composite discussion of the many problems presented by "overtime" work.—*J. Indiana State M. A.*

in the 11 patients in this series. The invariably rapid tendency to progress explains why the greater majority in the series requires such large doses of insulin. It must be pointed out that the age of 40 was chosen in this clinic as a dividing line between young and middle-aged. This was done because it was found by general experience in the clinic that although the diabetes in patients whose disease first manifested itself when they were between 30 and 40 years of age progressed more slowly than in adolescent diabetics, the inherent tendency to progress was present. In this small series there were three people whose diabetes had first appeared in the fourth decade, and they required from 35 to 70 units of insulin. As can be seen in Table 3, diabetic control was difficult to attain in these patients; attempts to lower the hyperglycemia with increased insulin dosages lead to frequent insulin reactions.

The need for a grouping of diabetics as suggested in this work is emphasized by the results of insulin therapy found in these younger patients. They differ from the older obese group in ways other than merely a quantitative difference in insulin lack. It can be seen that, for example, giving 35 units to a young diabetic who requires 45 units does not change the status of the case to the equivalent of an older diabetic who requires 10 units. The two groups differ in their respective responses to insulin therapy because of inherent differences.

Summary and Comment

In general it can be said that a single daily dose of protamine zinc insulin (from 10 to 20 units) can bring about excellent control of the diabetes in obese individuals older than 40 years of age when treatment is started a short time after the onset of the disease and maintained, and also when weight loss is brought about by dietary measures. In these individuals, a physiologic level of diabetic control can easily be attained. Similar excellent control can be obtained in younger persons and thin individuals at the onset before the diabetes has progressed. The largest requirements for insulin and most difficulty in controlling the blood sugar level are chiefly found in four groups of patients: (1) adolescent diabetics; (2) young adults (under the age of 40 at the onset) whose diabetes has progressed rather rapidly, frequently after a mild beginning, (3) patients who were between 40 and 60 years of age and *thin* when the disease manifested itself, and (4) the obese patients (originally mild) who neglected treatment for many years, particularly those who remained obese and had not cooperated in dieting.

Classification of diabetics into clinical groups as discussed above has been considered valueless by many authors because of the numerous exceptions that occur. It is our feeling that these exceptions become fewer when the diabetes of a patient is viewed from a kinetic viewpoint. While the course of the diabetes is chiefly indicated by the age and weight of the individual at the onset, subsequent factors (such as neglect in dieting, weight-loss, and duration of the disease) modify the picture. When these are considered, the number of exceptions are found to be small.

Insulin therapy in uncomplicated cases takes on added significance when considered along these lines. Insulin does not change the inherent nature of the diabetes existing in the patient. On the other hand, its effects are limited and are restricted by the type of diabetic picture in the patient who receives the insulin, and the results attained by such therapy are also dependent on the type-response of the patient. For instance, it is usually impossible to obtain a physiologic level of blood sugar regulation in young diabetics who have neglected treatment for a long time, and too vigorous attempts to do so with insulin lead to unusual hypoglycemic episodes. This has led us to adopt a dual standard for "diabetic control." In patients over 40 and who were obese at the onset of the diabetes, normal blood sugars are demanded after a period of treatment as a criterion of good control. The same rigid standard is demanded of and can be attained without complications in all recent cases, whether young or old. However, in others, such as in younger individuals in whom the diabetes has progressed or in "obese middle-aged" diabetics whose disease is of long duration, the blood sugar can be allowed to remain at higher levels and the standards of diabetic control liberalized. In these cases, insulin will lower excessive hyperglycemia, but an attempt to alter the response of the patient, by *forcing* the blood sugar down, leads to the well-known complications of excessive insulin therapy.

Conclusions

Patients with diabetes differ in that there is an inherent tendency in some for the blood sugar to fall readily with treatment whereas in others it tends to stay elevated. Some cases improve after treatment while others continue to progress.

The separation of diabetics into groups helps to emphasize these differences. The grouping of patients according to their age and weight at the onset of the diabetes provides a good working basis for study of the clinical course. The dosage of insulin as well as the degree of diabetic con-

Southby, alludes to the disparities in blood pressure between both arms in hypertensives.

Furthermore, in the vast statistical records of insurance companies, which in the main form the basis for our normal blood pressure standards, there is no mention made of whether such readings are taken on the right arm or the left arm, or of differences between them. Most physicians indiscriminately use either arm, favoring the one most accessible to them at the time of examination, and few make it a routine practice to record the readings on both arms, unless an aneurysm, thoracic neoplasm, or some congenital anomalous condition is suspected.

Moreover, in a recent article on the standardization of blood pressure by the Joint Committees for Blood Pressure Standardization of the American Heart Association and the Cardiac Society of Great Britain and Ireland,[13] no mention is made as to whether the blood pressure should be taken on the right or left arm or of any disparity between them.

In view of the dearth of information of this important subject and the astounding differences in the blood pressure of both arms, particularly in hypertensives, we have recorded bilateral blood pressure readings in 1,000 individuals with an apparently normal cardiovascular system and in 272 hypertensives.

Preliminary Remarks

We have regarded the commencement of the first phase of arterial sound as the systolic pressure, and the level at which the arterial sound suddenly becomes dull and muffled as the diastolic pressure. This is in accord with the standards set forth by the Committee on Blood Pressure Standardization.[13] Readings up to 150 systolic pressure have been considered as within normal range and those consistently above 150 as hypertensive, particularly in patients up to 50 years of age.

Two or more observations have been made on each arm and their averages recorded for each patient.

A not infrequent source of error in cases of hypertension is the failure to recognize the so-called auscultatory gap. This phenomenon is a silent auscultatory zone which appears about 10 to 30 mm. below the true systolic level and continues for about 20 to 40 mm. downward. Inflation of the cuff to a point above that indicating the obliteration of the pulse by palpation will avert mistaking the lower limits of the auscultatory gap for the systolic pressure. We have found an auscultatory gap to exist in approximately 10 per cent of hypertensives, particularly those of severer grade.

Observations

There were 612 females and 388 males in the group with an apparently normal cardiovascular system and 178 females and 94 males in the hypertensive series. The ages of the patients in this study ranged from 16 to 75, the majority falling into the third, fourth, and fifth decades.

1. Data on Brachial Blood Pressure Disparities in 1,000 Apparent Normals.—In Table 1 we have tabulated the frequency with which the systolic blood pressure in both arms was approximately the same, the right greater than the left, and vice versa. Blood pressure disparities were found in 76.4 per cent of all normals. This figure comprises 70 per cent in which the right systolic was higher than the left, and 6.4 per cent in which the left systolic was higher than the right. It is important to note, therefore, whereas 70 per cent of all normals had a higher right arm systolic blood pressure, only 6.4 per cent had a higher left arm systolic blood pressure.

TABLE 1

	No. of Cases	Percentage of Total
= left	236	23.6
> left	700	70.0
right	64	6.4
Total	1,000	100.0

In Table 2 we have tabulated the degree of systolic blood pressure disparity between both arms in those cases in which the right was greater than the left. This group constituted 70 per cent of all normals, or 91.6 per cent of the cases in which bilateral inequalities occurred. The disparity was a small one (up to 10 mm.) in 55.4 per cent, and a significant one (10 mm. and over) in 44.6 per cent of these cases. Of the latter group, 12.1 per cent (or 8.4 per cent of all normals) had a large difference, ranging from 20 to 30 mm., with an average disparity of 24 mm. In the group in which the left brachial pressure was higher than the right (only 6.4 per cent of all normals), the systolic blood pressure disparity between both arms was invariably small. It bears reiteration that 12.1 per cent of those cases with higher right brachial readings had bilateral systolic pressure differences of 20 to 30 mm. This should dispel the long-standing clinical fallacy that disparities of 20 mm. or more between both arms

TABLE 2

Degree of Systolic Disparity (Right > Left)	No. of Cases	Percentage of Total
Up to 10 mm. (average 6 mm.)	388	55.4
From 10 to 20 mm. (average 14.6 mm.)	228	32.5
From 20 to 30 mm. (average 24 mm.)	84	12.1
Total	700	100.0

DISPARITY IN BLOOD PRESSURES IN BOTH ARMS IN NORMALS AND HYPERTENSIVES AND ITS CLINICAL SIGNIFICANCE

A Study of 1,000 Normals and 272 Hypertensives

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THE deluge of articles on hypertension within the past decade has caused wonderment at this seemingly endless surge of presentations. Yet, in spite of the enormity of the literature, our knowledge concerning the cause of essential hypertension still remains in a nebulous state. The brilliant research of Goldblatt and others, however, has paved the way and holds out promise for a possible solution to some of the complexities of the hypertensive riddle. It is our intention to present some clinical rather than experimental observations with reference to the disparity in the blood pressures of both arms in 1,000 apparently normal persons and 272 hypertensives, and the practical application of these observations. The work herein presented is part of a study carried on over a period of years on the differences in the blood pressure readings between both arms and various levels of the lower extremities. Our data and conclusions with respect to the disparities in blood pressure between arms and lower extremities will be detailed in a subsequent paper.

The Literature

A survey of recognized texts and systems of medicine reveals either no mention or only casual comment on the disparity in blood pressure readings in both arms in normals and hypertensives. To quote from some of these sources: Tice[1] states: "The blood pressure is usually equal in both brachial arteries. In aneurysm of the aorta there is often a difference of from 10–20 mm. in systolic pressure on the two sides. The diastolic pressure is not affected." Nelson[2] claims: "A consistent difference of 10–20 mm. or more of mercury in the systolic pressure is found in aneurysm of the aorta." Osler[3] maintains: "While the arterial blood pressure in aneurysm is either normal or slightly above, in a majority of cases of thoracic aneurysm there is a marked difference in the blood pressure in the two arms and when this is greater than 20 mm. it is a point in favor of aneurysm." According to Sir Thomas Lewis,[4] "Normally a difference of 10–15 mm. may be found in the pressure in the two arms."

The recent works of Levine, White, Fishberg, Best and Taylor, and Wiggers make no mention of any inequalities in the blood pressures of both arms in normal and hypertensive individuals.

A search of the periodical literature likewise reveals a paucity of information upon this subject, and inequalities in the blood pressure between both arms are regarded as slight or inconsequential. Riesman[5] holds that the pressure in both brachial arteries not infrequently varies because of sclerotic processes, an extra cervical rib, or an aneurysm. Kay and Gardner[6] in a comparative study of the blood pressure on both arms found that 80 per cent of 500 blood pressure readings made on 125 patients revealed differences of from 5 to 10 mm. in systolic pressure and 20 per cent showed greater differences. Korns and Guinand[7] in a study of bilateral brachial pressures on normal persons found inequalities in the systolic pressure of both arms in 22.2 per cent and diastolic inequalities in 21.7 per cent of their cases. Three-quarters of the higher pressures were right brachial. MacLaren[8] observed that a difference of 20 mm. in systolic pressure of both arms occurred in 12 per cent of his cases and lesser inequalities in many more.

Southby[9] in an illuminating paper presents his observations on 516 patients. He noted differences of less than 20 mm. in systolic or less than 10 mm. diastolic in 40 per cent and above 20 mm. systolic or above 10 mm. diastolic in 60 per cent of his cases. Right brachial readings were higher than the left in the vast majority of individuals. Rarely were the pressures of both arms the same and only occasionally was the left arm reading higher than the right. The difference between both arms was much greater in some individuals than in others and increased with higher systolic readings in the right arm. Stroud,[10] in commenting upon Southby's paper, remarks: "This is an important contribution, as in routinely making blood pressure determinations on each arm I have been astounded at the marked variations between the pressures in patients with an apparently normal cardiovascular system." Johnson[11] found a significant increase in the right brachial systolic blood pressure over that of the left in 17 of 38 normal individuals. The diastolic pressure, however, he found to be higher in the left arm though less consistently so. Shock and Ogden[12] in a study of a group of normal young adult males found significant differences between blood pressure measurements made simultaneously on the two arms in 70 per cent of the cases.

None of these papers, other than that of

Adjunct physician to the Beth Israel Hospital, and assistant attending physician to Gouverneur Hospital.

TABLE 8

	No. of Cases	Percentage of Total
Right diastolic pressure = left	42	15 6
Right diastolic pressure > left	223	81.9
Left diastolic pressure > right	7	2 5
Total	272	100.0

In Table 9 will be seen the degree of diastolic pressure disparity in those cases in which the right diastolic superseded the left. Whereas in the case of the systolic pressure, 60.5 per cent had differences of 20 mm. and over between both arms, 95.8 per cent of the diastolic pressures revealed disparities under 20 mm.

TABLE 9

Degree of Diastolic Disparity (Right > Left)	No. of Cases	Percentage of Total
Up to 10 mm.	149	66.7
10 to 20 mm.	65	29.1
20 and over	9	4 2
Total	223	100.0

The cases in which the left diastolic pressure was greater than that of the right comprised only 2.5 per cent of the series, the disparities being invariably small.

Clinical Significance

What deductions can be drawn from the above data? A knowledge of these disparities in brachial blood pressure is of the utmost importance for the standardization of blood pressure readings and in the diagnosis and prognosis of blood pressure abnormalities. It is surprising how few physicians are conversant with these disparities. Most physicians indiscriminately record their observations on either the right or the left arm and rarely bilaterally. Generally, the arm most accessible at the time of examination is employed. In view of the frequency with which disparities in brachial blood pressure in both arms occur in normals and hypertensives, it should become a routine practice to record all observations on both arms. Inasmuch as we have found that the right arm pressure conforms more nearly with the standards of blood pressure as we know them today, this arm should be regarded as the standard arm and subsequent blood pressure comparisons should be made on the basis of right arm records.

A difference in systolic pressure of 20 mm. or more should no longer be regarded with awe. In the past, such differences were attributed to an aneurysm of the aorta, thoracic neoplasm, an extracervical rib, or some other congenital vascular anomaly, more particularly aortic aneurysm. These pathologic states may or may not cause disparities in blood pressure in both arms. From the data presented, it is to be noted that 12.1 per cent of apparent normals and 60.5 per cent of hypertensives with bilateral brachial blood pressure inequalities have a systolic disparity between both arms of 20 mm. or over. Significant differences in blood pressure between both arms in normals are relatively common and very frequent in hypertensives, but rarely caused by the aforementioned pathologic states. In aneurysm of the aorta, the blood pressure is either normal or slightly increased and there may or may not be a difference of 20 mm. or over. Since aortic aneurysms originate notably from the ascending aorta, in these cases the lower brachial pressure will in most instances be found in the right arm, in contradistinction to that of normals and hypertensives, in which the lower pressure is almost always found in the left arm. Furthermore, greater disparities occur in hypertensives than in the cases of aortic aneurysm and with far greater frequency. Nevertheless, one should not be unmindful of the fact that such pathologic states as mentioned may be possible causes for bilateral brachial blood pressure inequalities. Cardiovascular, thoracic, and peripheral neurovascular symptoms and signs will make the differential diagnosis obvious in the rare case in which such conditions are responsible for blood pressure disparities.

The indiscriminate determination of right and left arm readings on different occasions by the same or another physician may result in diagnostic and prognostic error, unless one is aware of the disparities in blood pressure which are so frequent in normals and hypertensives. To illustrate: the right brachial pressure may be 220/140 and the left 180/110. Indeed, a pressure of 220/140 is of more serious import than one of 180/110 and reflects the truer blood pressure status. Furthermore, subsequent right brachial observations will give a clue as to the progression of the hypertensive state, whereas indiscriminate right and left arm readings will make for prognostic error. It is important to bear in mind that 51 per cent of all hypertensives revealed disparities of 20 mm. and over between both arms. Moreover, the diagnosis of hypertension may be missed in its milder forms should the left arm pressure alone be taken. For example, the right arm pressure may be 150/92, whereas that of the left may be only 130/86. In this instance, the left arm pressure lies within normal limits, thereby belying the true state of affairs. In mild to moderate cases of hypertension, the left arm pressure frequently masquerades under the guise of a normal blood pressure.

Similarly, in cases of normal blood pressure, when the right brachial pressure is, for example, 110/70, the left arm pressure may be only 90/60. Thus, the left brachial blood pressure gives one

are highly indicative of aortic aneurysm. Our observations on hypertensives (*infra vide*) are strongly confirmatory of this deduction.

Table 3 details the diastolic blood pressure inequalities between both arms in apparent normals. A disparity between both arms was found in 73.5 per cent of the entire series, with 65 per cent of the cases having a greater right diastolic pressure and only 8.5 per cent having a greater left diastolic pressure. Thus, in the case of the diastolic blood pressure the frequency with which the pressure in the right arm tops that in the left is less than in the case of the systolic pressure.

TABLE 3

	No. of Cases	Percentage of Total
Right diastolic pressure = left	265	26.5
Right diastolic pressure > left	650	65.0
Left diastolic pressure > right	85	8.5
Total	1,000	100.0

In table 4 we have noted the degree of diastolic disparity between both arms in those cases in which the right diastolic is greater than that of the left. In this group, which comprised 65 per cent of normals, 85.7 per cent showed a disparity up to 10 mm. (average 4.4 mm.) and 14.3 per cent a disparity of 10 to 20 mm. (average 13.8 mm.). In the group in which the left diastolic was greater than the right (only 8.5 per cent of normals), the difference was invariably small (up to 10 mm.). Hence the degree of diastolic pressure disparity is small in the vast majority of cases relative to that of the systolic disparity. It is for this reason that the right arm pulse pressure is almost always higher than that of the left.

TABLE 4

Degree of Diastolic Disparity (Right > Left)	No. of Cases	Percentage of Total
Up to 10 mm. (average 4.4 mm.)	557	85.7
From 10 to 20 mm. (average 13.8 mm.)	93	14.3
Total	650	100.0

These disparities in systolic and diastolic blood pressure were found to occur in both sexes and in all adult age groups, with a tendency toward a slightly greater increment with each decade. In children, lower pressure readings make for less appreciable, and oft times, insignificant differences.

2. *Data on Brachial Blood Pressure Disparities in 272 Hypertensives.*—In a series of 272 cases of hypertension, 89.3 per cent of the cases revealed a disparity between both brachial systolic pressures. In 84.4 per cent of these cases there was an appreciably higher right systolic pressure. In only 4.9 per cent was the left systolic greater than the right. Thus, 89.3 per cent of hypertensives and 76.4 per cent of normals reveal systolic blood pressure disparities between both arms. In Table 5 is recorded the frequency with which the systolic pressure was approximately the same, the right greater than the left, and vice versa.

TABLE 5

	No. of Cases	Percentage of Total
Right systolic pressure = or slightly > left	29	10.7
Right systolic pressure significantly > left	230	84.4
Left systolic pressure > right	*13*	*4.9*
Total	272	100.0

Table 6 indicates the degree of systolic pressure disparity between both arms in this series of hypertensives. In those cases in which the right systolic was greater than the left (84.4 per cent) there was a significant disparity of 20 to 50 mm. in 60.5 per cent of the cases. This comprises 35.6 per cent with a disparity of 20 to 30 mm., 16 per cent with 30 to 40 mm., and 8.9 per cent with 40 to 50 mm. It is highly important to take cognizance of the fact that 60.5 per cent of this group, or 51 per cent of all hypertensives, reveal a significant difference of 20 to 50 mm.

TABLE 6

Degree of Systolic Disparity (Right > Left)	No. of Cases	Percentage of Total
10–20 mm.	91	39.5
20–30 mm.	82	35.6
30–40 mm.	37	16.0
40–50 mm.	20	8.9
Total	230	100.0

The average disparity in systolic blood pressure in both arms, according to the degree of hypertension, is revealed in Table 7. This disparity increases with the increase in systolic hypertention of the right arm, mounting from an average of 16 mm. in hypertensives with readings between 150 and 170 mm., to an average of 41.6 mm. in cases with readings of 230 and over.

TABLE 7

Degree of Hypertension	No. of Cases	Average Disparity
150–170 mm.	76	16.0 mm.
170–190 mm.	105	18.1 mm.
190–210 mm.	55	23.3 mm.
210–230 mm.	25	36.6 mm.
230 and up	11	42.6 mm.
Total	272	

In Table 8 we have noted the frequency of diastolic pressure disparities between both arms in hypertensives.

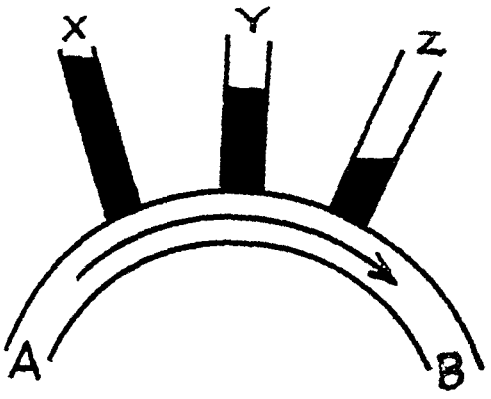


Diagram 3

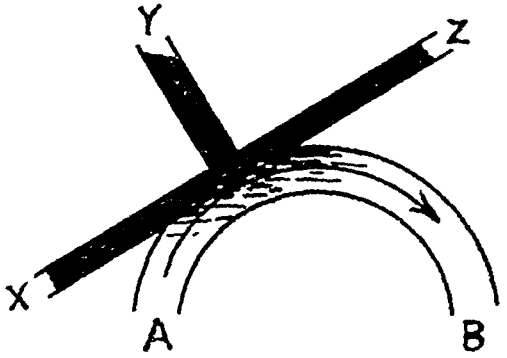


Diagram 4

clavian artery arises, is more in the direct line of the blood stream in its upward thrust from the ascending aorta than the left subclavian artery, which arises directly from the arch of the aorta and is almost perpendicular to the stream of blood flow in the aortic arch. Therefore, the blood pressure in the right subclavian artery and consequently in the right brachial artery will be higher than that of the left. Southby's[9] hydrostatic experiments are very enlightening on this point. It is a law of hydrostatics that in a rigid tube with three outlets perpendicular to the main tube (x, y, z) and liquid flowing from A to B, the pressure will be higher at x, the point nearest the inflow, and lowest at z, the point nearest the outflow. (See Diagram 2.)

Similarly, in the case of a curved rigid tube (Diagram 3) with the three outlets x, y, and z at right angles to the main tube, the drop in pressure from x to z will be even greater than in a case of the straight tube, due to the greater dissipation of energy in flow through a curved tube.

Southby convincingly shows that in a more curved tube in which the three outlets, x, y, z, are closely approximated (Diagram 4), and the direction of each is such that x is against, y is at right angles to, and z is in the direction of the main flow, the pressure at x will be less than at y, which in turn is less than at z.

These differences in pressure, he finds, become even more pronounced in an elastic tube, especially when the outlet at B is constricted, thereby corresponding to a peripheral resistance (Table 11, Exp. II), and when the stream of flow is made intermittent rather than continuous (Exp. III). By attaching manometers at x, y, and z, and varying the peripheral resistance in this elastic curved tube, he found the following pressure disparities:

From Exp. II, it is apparent that there is a difference of 29 mm. between the pressure at z, the direction of which is equivalent to the right innominate, and y, which is equivalent to that of the left subclavian artery. When, however, the peripheral resistance was increased, the disparity rose to 35 mm. It is for this reason, therefore, that higher pressure readings occur in the right arm normally and in hypertensives, the disparity increasing with the increase in the systolic pressure of the right arm.

TABLE 11

	Experiment	Pressure (Mm.) at x	y	z
Exp. I	When the stream of flow is continuous	23	34	47
Exp. II	When the stream of flow is continuous, with outlet at B constricted, corresponding to a peripheral resistance	99	117	146
Exp. III	When the stream of flow is continuous [illegible] and an intermittent stream created by rapidly turning tap from water supply on and off	163	182	217

Summary

1. Blood pressure disparities between both arms are common findings, occurring in 76.4 per cent of 1,000 apparent normals and 89.3 per cent of 272 hypertensives.

2. The right brachial systolic blood pressure was higher than the left in 70 per cent of normals and in 84.4 per cent of hypertensives. In only 6.4 per cent of normals and 4.9 per cent of hypertensives was the left brachial systolic pressure higher than the right.

3. In those normals in whom the right systolic pressure was greater than the left, a significant systolic disparity, 10 to 30 mm., was found in 44.6 per cent. This comprised 32.5 per cent with a disparity of 10 to 20 mm. of mercury, and 12.1 per cent with 20 to 30 mm. of Hg. In other

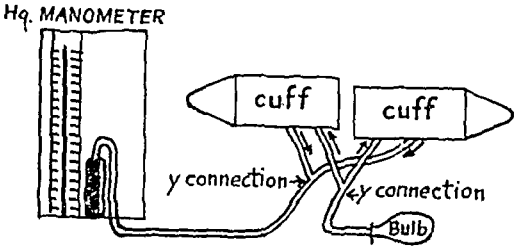


Diagram 1



Diagram 2

the impression of a hypotension which in reality is not the case. Also, the degree of the hypotensive state can be gleaned from the right rather than from the misleading lower left arm reading. It is interesting to note that in many hypotensives and low normals, complaints are frequently referred to the left side of the body—i.e., left vertigo, and left paresthesias. This may well be due to the lower blood pressure in the left arm and in left side of the head.

In cases of coronary occlusion and angina pectoris, incorrect diagnosis and errors in prognosis may also be averted by recording repeated blood pressure readings on the right arm, or preferably both arms.

From the foregoing data and remarks, the importance of bilateral brachial blood pressure readings with particular attention to those of the right arm, cannot be too strongly stressed in the evaluation of the cardiovascular system. A knowledge of the frequency and degree of such blood pressure disparities in normals and hypertensives will avert errors in diagnosis and in prognosis. It should also dispel the long-standing clinical fallacy of regarding bilateral pressure differences of 20 mm. or over as highly indicative of aortic aneurysm.

Explanation

Although disparities in brachial blood pressure may be due to organic causes, such as thoracic aneurysm, thoracic neoplasm, vascular ostial stenoses, coarctation of the aorta or its branches, cervical rib, double aorta, etc., such is rarely the case. In the vast majority of cases the explanation for brachial blood pressure inequalities lies in the anatomy and dynamics of the cardiovascular system itself.

It has been suggested that these pressure disparities may be related to the time interval between right and left arm determinations, rather than to any actual difference between pressures in the two arms. In "Queries and Minor Notes" in the *Journal of the American Medical Association*,[14] the editor states that should the right arm pressure be recorded first, the pressure in that arm will be higher than that of the left, and should the order be reversed, the left will be found higher than that of the right. This is indeed fallacious. We have made determinations using the left arm first and have found the same pressure disparities. Furthermore, we have recorded blood pressure observations simultaneously by the auscultatory method and have found similar differences between both arms. In order that simultaneous readings may be taken by one examiner instead of two, we have devised a bilateral sphygmomanometer and have recorded the systolic pressures in both arms, simultaneously, by the palpatory method. The results of such studies conform with those of the auscultatory method, save for the fact that the systolic palpatory readings are between 10 and 15 mm. less than those of the auscultatory method in most cases. (See Diagram 1.)

What, then, is the cause underlying these pressure disparities? It would appear prima facie that these differences are due to the greater muscular development of the right arm as compared with the left. This is not borne out by a study of blood pressure observations made on a series of twelve left-handed individuals (Table 10).

Furthermore, cases of right hemiplegia revealed similar disparities between both brachial pressures with the higher pressure in the right arm despite the right hemiplegia.

Hence, the explanation must be sought in the anatomy and dynamics of the cardiovascular system itself. The anatomy of the arch of the aorta and its large branches is such that the innominate artery, from which the right sub-

TABLE 10

Case	Right Arm Pressure	Left Arm Pressure	Disparity
1	112/72	110/72	2/0
2	118/76	110/72	8/4
3	120/80	110/80	10/0
4	110/80	108/72	2/8
5	120/80	112/74	8/6
6	124/82	116/78	8/4
7	118/70	110/64	8/6
8	140/86	122/80	18/6
9	140/84	128/80	12/4
10	178/96	160/88	18/8
11	180/92	160/90	20/2
12	186/100	154/96	32/4

THE STUDY OF CELLULAR RESPIRATION IN VIVO WITH THE SPECTROREDUCTOMETER AND SOME HORMONAL OBSERVATIONS

Louis Berman, M.D., New York City

In 1875, Vierordt[1] first described the application of the spectroscope to the study of cellular respiration in human beings. He called his method physiologic spectroanalysis. His method consisted essentially of isolating the circulation in an accessible tissue with a tourniquet or clamp, applying a spectroscope over it, and passing a beam of light under it. In this way the length of time taken for the replacement of the characteristic absorption bands of oxyhemoglobin by those of reduced hemoglobin and then those of methemoglobin can be measured by means of a stop watch.

When the blood spectrum of clamped or ligated tissue is thus viewed immediately after the application of a clamp or ligature, two bands are seen in the green, one at its junction with the red, and the other in the green on the other side. Between the two black bands a band of green is seen. As time passes—i.e., as the oxyhemoglobin gives up its oxygen to the tissue—these bands become lighter until, at the moment of complete reduction of the hemoglobin, they are replaced by a single black band comprising all of the green. In the normal individual this takes place in about 60 seconds, varying from about 55 to 65 seconds. Its appearance may be described as a sort of "black-out" of the green as the green is replaced by a homogeneous blue-black area for about 2–5 seconds. After this, two very light bands of methemoglobin appear.

The reduction time is the time consumed between the time of applying the clamp or ligature and the time of appearance of the single homogeneous black band comprising all of the green in the spectrum and replacing the fading bands of oxyhemoglobin. The two absorption bands of oxyhemoglobin are situated at Angstrom unit wave lengths 5769 and 5448, while the single band of reduced hemoglobin is situated at 5650. The bands of methemoglobin are placed at 5780 and 5400.

An instrument may be constructed with a sloping wall upon which the hand may be conveniently placed in relation to the attached spectroscope, and a light with a condenser and a water bottle for concentrating and cooling the light which should be strong enough to transilluminate the area used, most frequently and conveniently the interdigital fold between the thumb and the forefinger. Because this instrument measures the reduction time of the oxyhemoglobin of the blood by measuring the variation in its spectroscopic absorption bands, the instrument has been named the spectroreductometer.

Vierordt's work was repeated by one of his students, Dennig,[2] and then apparently forgotten or neglected until it was taken up again by the French physician Albert Henocque,[3] who, having made certain modifications in the instrument which he called the hematoscope, applied it to the study of various conditions and published a monograph on it in 1898. Harris and Creighton[4] repeated Vierordt's observations in 1915. Guillaume,[5] in 1923, claimed to have demonstrated a correlation between the basal reduction time and basal metabolism. This was apparently confirmed by Zondek and Uko who found that the basal reduction time was shortened in hyperthyroidism and prolonged in hypothyroidism. Meyer and Reinhold[6] looked for the effect in animals of tying down and urethane narcosis, but found none. The injection of quinine or potassium cyanide prolonged the basal reduction time, while artificial asphyxia shortened it, as did the injection of caffeine. Milk and typhoid vaccine accelerated it for several days even though no rise in temperature occurred.

The French observers, Ferrier and Dausset,[7] continued the work of Henocque and applied it to the study of endocrine conditions. The Dutch gynecologist, Samuels,[8] employed it in gynecologic conditions, and particularly menstrual, pregnancy, and menopausal variations with his instrument which he called the cycloscope. He stated that in the menopause the basal reduction time was prolonged, and declared that this was caused by an excess of gonadotropic hormones of the pituitary in the blood and tissues. He presented no data substantiating this correlation, which he made on purely empirical grounds.

I have been using the spectroreductometer since 1938 in the study of tissue respiration in various endocrine conditions. I decided to study the relation of the basal reduction time to the gonadotropic hormone content of the urine of a series of 15 women presenting the symptoms of the climacteric. Twenty-four-hour specimens of their urine were obtained and the mouse unit content of the gonadotropic hormones was determined according to the method of Zondek and Aschheim. The basal reduction time was studied at the same time, with the same standardizing precautions taken as are employed in

words, 8.4 per cent of all normals revealed a systolic blood pressure difference between both arms ranging from 20 to 30 mm. Hg.

4. In the hypertensive group, in which the right arm systolic was greater than the left, there were 39.5 per cent with a systolic disparity of 10 to 20 mm. of Hg, 35.6 per cent with 20 to 30 mm. of Hg, 16 per cent with 30 to 40 mm. of Hg, and 8.9 per cent with 40 to 50 mm. of Hg. Hence, 60.5 per cent of hypertensives with a right systolic pressure exceeding the left, or 51 per cent of all hypertensives, had disparities ranging from 20 to 50 mm. of Hg between both arms.

5. In the small number of cases in which the left brachial systolic pressure was greater than that of the right, the degree of disparity was invariably a small one.

6. Similarly, diastolic blood pressure disparities occurred in normals and hypertensives, but to a much lesser degree than systolic differences.

7. These blood pressure disparities were found in both sexes and in all adult age groups, with a tendency toward a slightly greater increment in each successive decade.

8. The degree of blood pressure disparity in hypertensives roughly increases with the degree of hypertension from an average disparity of 16 mm. of Hg in hypertensives of 150 to 170 mm. of Hg to an average of 41.6 mm. of Hg in those with blood pressures of 230 mm. and over.

9. Significant and at times amazing systolic pressure disparities between both arms are common findings in apparent normals and hypertensives, and should dispel the long-standing clinical fallacy of regarding such differences as strongly indicative of aortic aneurysm.

10. A knowledge of these differences is of great importance in the standardization, diagnosis, and prognosis of blood pressure abnormalities.

11. The importance of routinely recording all blood pressure observations on both arms, using the right as the standard, cannot be overemphasized.

12. The cause for such blood pressure disparities between both arms in normal individuals is usually inherent in the anatomy and dynamics of the aortic arch and its branches.

45 East 9th Street

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GOD HELPS THOSE—

If physicians were endowed with only half the aggressiveness in defense of their interests that chiropractors show, they would not be in the vulnerable position in which they now find themselves, subject to constant sniping at the hands of demagogues and irregular healing sects. Today medicine, which should be the arbiter of problems related to healing, is the target of any politician who wants to dazzle the public with "something for nothing." At the same time, a scientifically worthless cult-like chiropractic has attained the proportions of "big business" and flourishes openly even where it violates the law.

Medical apathy must bear a considerable portion of the blame for this. Whatever the scientific deficiencies of chiropractic, it can never be said that its practitioners lack zeal or are unwilling to contribute money and effort to the furtherance of their sect. A brochure issued by the New York State Chiropractic Society, Inc., reveals that for approximately twenty-five years its members have annually "volunteered a self-assessment of six per cent of (their) gross income for six months" to defray the expenses of its legislative campaigns. "Dues were not touched for that."

Compared with this spirit, the cooperative efforts of physicians in their own behalf are puny indeed. On the rare occasions when they are asked to contribute money to fight off a threat to their profession or further its interests, funds are forthcoming slowly and reluctantly, if at all. It is even difficult to get a doctor to write a letter to his legislative representatives on questions vital to professional survival.

Admittedly the days of the average medical man are full of work and responsibility beyond the chiropractor's ken; and when he is finished with the duties of practice, medical meetings and a vast scientific literature demand his attention. Nevertheless, he must realize that the socio-economic aspects of his profession are as much a part of his day-to-day concern as practice and graduate study. There will be no tomorrow for medicine as we know it unless every medical man takes an active part in the protection and betterment of his profession today.—*J. Med. So. N.Y. Co.*

Section on Anesthesiology

Medical Society of the State of New York

Address of Welcome*

JOHN H. EVANS, M.D., Buffalo

IT IS with great pleasure that I welcome my fellow anesthetists and our guests to the City of Buffalo for the One Hundred and Thirty-seventh Annual Meeting of the Medical Society of the State of New York.

Although our section is the latest addition to the State Society, our responsibilities are by no means the least, especially when it comes to caring for the casualties of this World War.

It is with great satisfaction that I think of the advances made in the interval between the two World Wars. In 1917 the specialty of anesthesia was in its infancy; there were only a few physician anesthetists; the equipment was scarce, and for general anesthesia we were limited to ether, chloroform, nitrous oxide, and ethyl chloride.

Today the specialty of anesthesia has become mature and has been allotted its rightful place in the medical setup along with the other important branches of medicine.

For this war there are hundreds of skilled anesthetists; there is more and better equipment; we have a larger number of anesthetic agents and improved methods of administration. The wounded of our armed forces will be better cared for from the standpoint of anesthesia and prevention of surgical shock than in World War I.

During the past twenty-five years great advances have also been made in gas therapy, and in general the responsibility for its proper administration has been placed on the shoulders of the anesthetist. The term "anesthesiology" has been substituted for that of "anesthesia" in the designation of our specialty to cover these added duties. The most important of the therapeutic gases are oxygen, helium, and carbon dioxide, of which, at the present time, oxygen has the widest field.

Chemical warfare was engaged in during World War I and we are threatened with it in this war. If it is used, the civilian population as well as the armed forces will be the victims. Our own country is far from being immune to this great peril, for our enemies are heartless and will not stop at anything to achieve their objective. When they see victory is impossible they will try to get what to them is the next best thing—revenge.

The proper treatment of gassed patients not only involves equipment but also an acceptance on the part of the medical profession of the newer and proved concepts of how gassed patients should be treated, especially from the standpoint of oxygen therapy.

The Cocoanut Grove disaster of last November, in which 489 persons died—chiefly from gas poisoning—is an example of what we may expect if chemical warfare is forced upon us.

I am taking the liberty at this time of calling your attention to what seems to me a grave emergency—namely, that we are not prepared to adequately treat large numbers of patients suffering from the effects of poisonous gas. I am confident that I can, in a few minutes, convince you that this statement is true and that something should be done about it. I believe you will agree with me that oxygen therapy is not only valuable but the most important therapy we have for the successful treatment of gas poisoning. Other measures are also greatly beneficial and should not be neglected, but it appears that the other therapies are placed in the foreground and oxygen in the background. It is still the old story though not so frequent as in the past—that oxygen therapy is not called for until the patient is in a serious condition or the cyanosis has reached a given degree of severity.

Those of us who are familiar with the indications and benefits of oxygen therapy and have learned from clinical experience that 100 per cent oxygen can and should be given continuously for as long as the cause of the suboxygenation exists are too inclined to assume, contrary to fact, that the use of oxygen in this way is generally accepted.

The physicians of Boston rate high with the medical profession. It is in Boston that many of the advances in medicine have had their origin. For example, it is the birth place of anesthesia and liver therapy. The attitude of the Boston physicians as a whole with respect

* Presented before the Section on Anesthesiology at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 4, 1943.

the measurement of the basal metabolism. The determinations were made on three different days. Similar determinations were made on 15 normally menstruating women, ages 20 to 30. The averages were as follows:

Normal Series		Climacteric Series	
Basic Reduction Time	Urinary Mouse Unit Liter of Gonadotropic Hormones per Liter	Basic Reduction Time	Urinary Mouse Unit Liter of Gonadotropic Hormones per Liter
55	0	90	68
65	12	95	50
58	0	85	40
55	15	90	65
60	10	75	38
65	0	105	70
62	0	70	45
55	0	90	52
60	10	95	58
52	0	68	35
65	0	75	48
55	18	95	42
50	0	50	15
63	10	90	45
60	10	95	60

Zondek, Fluhmann, and others have reported an increase in the excretion of the gonadotropic hormones in both the artificial and natural climacteric. Others have reported a gradual diminution of basal metabolism. The observations here presented indicate a more or less close correlation between the amount of gonadotropic hormones circulating in the blood and excreted by way of the kidneys and the slowing of cellular respiration as measurable by the technic of the spectroreductometer.

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NEW GERM-KILLERS

At the last meeting of the American Pharmaceutical Association, Dr. Paul Goedrich, of Rutgers University made the important announcement that he had discovered a combination of the sulfonamides and iodine which is effective where sulfa drugs are not.

In general, the sulfa drugs check the growth of the cocci. Among these cocci are those that cause meningitis, gonorrhea, and boils. Against the bacilli the sulfa drugs are ineffective. When a surgeon sprinkles a sulfonamide into a wound, now the standard practice, he is not sure that he has prevented infection from germs other than the cocci. Now that we have Dr. Goedrich's sulfaiodine compounds, the surgeon or physician is better able to cope with many possible types of infection.

When the iodine is all removed, the sulfaiodine compounds are still germ-inhibiting. It follows that the sulfonamides have been changed by the iodine. They are still sulfonamides, but they have much wider effects.

Dr. Goedrich's sulfaiodine compounds are effective not only against the cocci but also against spores of germs of the types that cause tetanus, gas gangrene, and anthrax, all very hard to kill. And so with the staphylococci that cause "blood poisoning" and boils, and the bacilli.

A new sulfa drug—new to the public—has made its appearance. It name is sulfallantoin. At Pearl Harbor a limited amount of it proved to be of great worth in treating wounds. The drug has been in successful use for many months in the treatment of second- and third-degree burns, various types of infectious ulcers, infected wounds, and compound fractures, as well as sinusitis and local eye, ear, nose, and throat infections.

Another new sulfa drug which brings prompt relief in colds and seems to shorten their duration, and the prevention of ear and sinus infections after a cold by a different sulfa drug used as a nose and throat spray are announced in the *Journal of the American Medical Association.*

The new sulfa drug is desoxyephedronium sulfathiazole and is made by combining sodium sulfathiazole with an ephedrine compound of the type used to shrink the swollen nasal membranes during a cold. It is announced by Dr. Frederick Myles Turnbull, Dr. William F. Hamilton, Eli Simon, and Melvin F. George, Jr., of the Lockheed Aircraft Corporation research laboratory at Burbank, Calif.

The prevention of ear infection, sinusitis, sore throat, laryngitis, and coughs following colds by the sulfadiazine spray, originally developed to fight infection in severe burns, is reported by Dr. David A. Dolowitz, Dr. Walter E. Loch, Dr. Henry L. Haines, Dr. Arthur T. Ward, Jr., and Dr. Kenneth L. Pickrell, from the Johns Hopkins Hospital, Baltimore.

FUTILITY

One thing I've learned from "doctoring"—
You cannot change the human race.
We think we've got it all controlled
When out it pops some other place.

—*Texas State J. M.*

THE SECOND BLESSING

Look to your health; and if you have it, praise God and value it next to a good conscience; for health is the second blessing that we mortals are capable of; a blessing that money cannot buy.—
IZAAK WALTON

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to oxygen therapy as shown by its use in the treatment of the victims of the Cocoanut Grove disaster doubtless reflects that of the profession throughout the United States and those in the armed forces as well.

Before relating some of my own experiences during the three days that I spent at the Boston City Hospital applying oxygen therapy to some of the victims of the disaster, I wish to cite the most important points from an impartial report made by the Medical Advisory Board of the E. L. Patch Company of Boston covering all of the hospitals.

"Most of the patients showed ill effects from the inhalation of hot gases, but were burned only slightly and then only over limited areas. The face, neck, and hands were the parts usually involved. . . . . It should, therefore, be noted that this large series of cases did not present a primary problem of treating major burns.

"Due to the high incidence of pulmonary complications resulting from the inhalation of superheated gases and exposure, frequent chest x-ray examinations were made. There were high incidence of pulmonary edema, several cases of marked bronchial pneumonia and severe pulmonary congestion.

"A relatively high percentage of patients required tracheotomy, because of obstruction to the upper respiratory passages. Because of advanced pulmonary edema and bronchial obstruction in some cases, the hoped for relief was not effected. Of the deaths recorded a high percentage had received tracteotomies.

"The first problem was that of treating shock." "Each case received at least one unit of plasma (250 cc.). Some cases got up to 20 units of plasma during the subsequent course of treatment.

"Many of the burned victims received sulfadiazine or sulfathiazole, either by mouth or intravenously.

"At one of the hospitals, 3000 units of antitetanus serum were given to nearly all patients after negative skin tests were observed. . . . . The local treatment of burns varied.

"At one institution, several methods of treatment were used.

"In many cases there was sufficient cyanosis, or difficulty in breathing to warrant the use of oxygen inhalation. . . . . This was administered in most instances by the nasal catheter method."

The report concludes by listing nine lessons to be learned from the Cocoanut Grove fire but there was no suggestion that, in the future, when similar catastrophes occur 100 per cent oxygen should be administered to all the gassed patients at the earliest possible moment. Apparently the Advisory Board was satisfied to wait "until there was sufficient cyanosis or difficult breathing to warrant the use of oxygen inhalation," and that its administration by the catheter method could not be improved upon.

I arrived at the Boston City Hospital at noon on Monday, November 30, thirty-eight hours after the catastrophe, my services having been solicited by Dr. William Morrison, Surgical Chief of the Hospital, and by Mr. James H. Rand, Jr.

At this time there were only 108 victims still alive. However, of the 250 admissions many were already dead on arrival at the hospital. During my three days' stay I was given the most courteous treatment and consideration, especially by Dr. Charles Lund, who had general supervision of the cases. While in his office, before starting to work, a medical officer of the Army called him on the telephone from Washington and urged the use of positive pressure oxygen in the treatment of the gassed patients. Dr. Lund seemed pleased when I told him that I had used that method for the past sixteen years. However, I was surprised to find that not one of the doctors whose patients I treated knew of positive pressure oxygen. By the time I arrived the majority of patients were under the care of their own private physicians, to whom my services were offered through an intern who assisted me while I was there and carried on after I left. I had brought with me seven McKesson oxygen machines and they were used on 3 cases of pulmonary edema and on 9 cases of pneumonia.

Good results were obtained in all cases, while in 4 the results were rather spectacular. However, since in most of the cases the doctors would not permit 100 per cent oxygen to be given continuously, the maximum good effects could not be achieved in all cases.

As my time is limited I will report only two of the cases:

Case Reports

Case 1.—A woman, aged 45, had gas poisoning and pneumonia. Tracheotomy had been done the day before I saw her. Her face was covered with vaseline gauze, and her arms and hands were bandaged because of burns. She was gasping for breath. Although she was not delirious, it required three nurses to keep her in bed and under the oxygen tent. Her toenails indicated marked cyanosis. When positive pressure oxygen was given her she quieted down and whispered, "Don't leave me." After ten minutes her physician wished the 100 per cent oxygen discontinued and the patient was again placed under the tent with the oxygen kept at the maximum flow permitted by the gage. She again became restless, cyanotic, gasped for breath, and had to be forcibly kept in bed. Her physician then said, "I give up; please go back to positive pressure

oxygen." As soon as this was done she settled down and breathed easily again.

Case 2.—A man, aged 50 and weighing 240 pounds, had gas poisoning, pneumonia, and burns of face, neck, arms, and hands. Toenails showed there was deep cyanosis. Tracheotomy had been done. The face and eyelids were so swollen that patient could not open his eyes. His physician plugged the tracheotomy tube and positive pressure oxygen was given by the mask method. After about thirty minutes the doctor made the observation that the edema of the face had been sufficiently absorbed to enable the patient to open his eyes, and asked if the edema of the upper respiratory mucosa would also be reduced in the same way. When I replied that it surely would he remarked, "Then all these tracheotomies might have been avoided." However, in spite of the improvement in this patient the doctor wished to have the 100 per cent oxygen discontinued because he believed that ten minutes was the maximum length of time it could be given with safety.

The results which were obtained by positive pressure oxygen apparently were discussed by those who saw the demonstrations and the information was passed on to others. While I was there a request was received from the Massachusetts General Hospital for four positive pressure oxygen machines and I was very sorry not to be able to furnish them, for all of mine were in use.

If we are to be prepared to give adequate oxygen therapy to large numbers of persons, whether on the fighting front or on the home front, immediate steps should be taken to obtain equipment and to convince the clinician that continuous 100 per cent oxygen can be given with safety to patients suffering from anoxemia and that it should be given at least intermittently as early as possible to all gassed cases in order to prevent pulmonary complications and to reduce edema of the bronchial mucosa.

The use of positive pressure oxygen is absolutely essential in the treatment of marked pulmonary edema and very important in oxygenation of the blood when there is swelling of the mucous membranes lining the respiratory passages.

Positive pressure cannot be obtained with the tent or catheter method or with the Boothby Lovelace-Bulbulian mask so that most of the equipment now in use is not suitable for giving oxygen therapy to seriously gassed patients.

I trust that something will be done at this meeting to start the ball rolling so that when the time comes—if it does—the greatest number of victims of chemical warfare will be saved.

RHEUMATIC FEVER CAUSED REJECTION OF 115,000

Of 13,000,000 men examined for military service, 230,000 have been classified as 4-F because of ailments of the heart, Col. Leonard Rowntree, medical director of Selective Service, reports. He added that there is further evidence that 50 per cent of those so classified have suffered from rheumatic fever.

He gave the figures at a discussion of the problem of rheumatic fever sponsored by the Children's Bureau of the Labor Department and attended by doctors, nurses, and public health officials from all parts of the country.

Doctors at the meeting said that Colonel Rowntree's figures, applied to the general population, indicated that more than 2,000,000 persons are afflicted with heart diseases, including more than 1,000,000 sufferers from rheumatic fever.

Dr. Martha M. Eliot, associate chief of the Children's Bureau, said the three-day meeting was aimed at pooling knowledge that might lead to a better defense against rheumatic heart diseases, which, she said, "cause more deaths among children than whooping cough, measles, meningitis, diphtheria, scarlet fever, and poliomyelitis combined."

ENGLISH EXPERIENCE IN SUPPLEMENTARY VITAMIN FEEDING

A mass experiment covering a period of seven to nine months carried out by the British Ministry of Health showed no discernible difference in the weight, height, or sickness record between school children who took multiple vitamin tablets regularly and others who went without. A similar experiment carried out with war workers engaged in the heavy smelting industry likewise failed to show any difference between the workers who took vitamin tablets regularly and those who did not.

These experiments were made under careful controls and under health and school authorities, and the results may come as a shock to those who hold extravagant notions on the beneficent effect of synthetic vitamins, says a recent dispatch. They do, however, tend to endorse the wartime nutritional program of the Ministry of Health and Food in England. This program is designed to provide adequate natural vitamins in the regular diet.—*Connecticut State M.J.*

Therapeutics

CONFERENCES ON THERAPY

THESE are stenographic reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments and institutions. The questions and discussions involve participation by members of the staff of the College and Hospital, students, and visitors. The next report will appear in the January 1 issue and will concern "Principles of Treatment of Edema and Dehydration."

Special Manifestations of Left Heart Failure and Their Treatment

DR. D. P. BARR: We have today the very difficult problem of treatment of left heart failure. Our discussion is to be opened by Dr. Gold.

DR. HARRY GOLD: I wish to take a few minutes to outline briefly some of the mechanisms involved in left heart failure. When the left ventricle fails, the changes in the heart and the circulation fall, broadly speaking, into three classes or groups: first, the changes due to the failure of the left ventricle to propel blood forward; second, the changes due to the failure of the left ventricle to drain the capillary circulation of the lungs; and third, a group of disorders more directly referable to the heart itself, which occur in consequence of the failure of the left side of the heart.

The first group of conditions, which is due to failure of the left ventricle to propel the blood forward, is seen in its most striking form in massive myocardial infarction. As the result of the sudden failure of the left ventricle, there occurs collapse of the peripheral circulation, with a fall in blood pressure. The peripheral blood flow slows down, paralysis of the capillaries takes place, and blood plasma passes out of the capillaries into the tissues. The return flow to the heart diminishes. The condition starts out as an acute left ventricular failure, and shortly thereafter peripheral circulatory shock takes over. It is, in the beginning, a condition in which the left ventricle is unable to propel as much blood as it receives. Soon the left ventricle fails to receive as much blood as it is capable of expelling, and a condition of circulatory shock results. The treatment is directed at peripheral circulatory shock rather than at failure of the left ventricle. I don't think we are going to deal with management of circulatory shock today.

The second group of conditions includes those, as I said, in which the chief problems arise from failure of the left ventricle to drain the capillary circulation of the lungs. The following phenomena arise: The heart becomes engorged—more blood is present in the heart, the left ventricle, and the left auricle than there is normally; more blood is also present (congestion) in the pulmonary veins and the pulmonary capillaries, and as the condition progresses there is engorgement of the pulmonary arterial tree and the right side of the heart; the pulmonary vascular pressure rises. Fluid then passes from the pulmonary capillaries into the lung tissues, with the development of pulmonary edema. As the result of these changes there arises a group of symptoms which we ordinarily associate with so-called left ventricular failure—namely, shortness of breath, orthopnea, rales in the lungs, and wheezing (bronchospasm); in the more advanced stage the symptoms of pulmonary edema appear.

The third group includes those symptoms and signs referable to the heart itself, which arise secondarily to a failure of the left ventricle. There is enlargement of the heart, which can be seen in the fluoroscopic examination or in the x-ray plate. One rarely sees a case of left ventricular failure without some enlargement of the heart. Suspect the diagnosis if there is no enlargement. Pulsus alternans, when it occurs, is an important change. A gallop rhythm, a presystolic gallop, a splitting of the first sound is common. It is believed to be due to the fact that the contraction of the auricle has become audible. There are other explanations. Cardiac pain indistinguishable in some of its features from the angina of effort is an occasional symptom. Disorders of rhythm are common. The patients may become susceptible to attacks of paroxysmal tachycardia, flutter, ventricular tachycardia, and heart block. They are often treated in various ways for the disorder of rhythm, unsuccessfully, until attention is directed to the fact that the underlying phenomenon is a failing left ventricle. Successful treatment of the failure of the left ventricle abolishes these various phenomena referable to the heart itself.

There are a number of clinical varieties of left heart failure, based on the character of the presenting signs or symptoms. First there are those patients who show nothing more than mild orthopnea; the elderly arteriosclerotic or hyper-

tensive patients who have some shortness of breath when they walk, but whose outstanding symptom is the need for an extra pillow or two at night. These symptoms often develop rather slowly and are overlooked. Second are the patients whose outstanding complaint is a cough that is treated a long time with cough remedies of all sorts without relief. A careful history reveals that the cough is related to their lying down at night, and when they lie on an extra pillow or two they do not cough so much. Cough is here the outstanding symptom. The third class of patients may be subject to effort angina, but a striking element in the pain is its tendency to come on more often at night when they lie down. They are awakened at night by an attack of pain.

Their attacks sometimes resemble coronary thrombosis. Some of them turn out to be cases of left ventricular failure and they remain unrelieved of their symptoms until suitable measures are taken to relieve the failure. The fourth group, which I have already mentioned, consists of patients subject to disorders of rhythm which respond badly until left ventricular failure is controlled. The fifth group of patients suffer from nocturnal dyspnea. They may be free of symptoms during the day. For example, a house painter who can do a great deal of work finds it impossible to lie down to sleep at night. He has to sleep sitting in a chair. If he goes to sleep lying in bed, he is awakened within an hour with an attack of so-called cardiac asthma, or a paroxysm of dyspnea. There is also a similar type of patient who is subject to attacks of pulmonary edema.

The last two groups I mentioned, those exhibiting paroxysmal dyspnea and pulmonary edema, are commonly recognized in their true relation to left heart failure, but the first series of conditions often go a long time begging for a diagnosis and treatment, and it was for emphasis that I placed them first.

In concluding I wish to list some of the measures that are used in the treatment of left heart failure. They may be considered in greater detail by others at the conference. They are: attention to posture; the reduction of the circulating blood volume, use of morphine and sedatives, use of diuretics (mercupurin or salyrgan with theophylline), use of digitalis, oxygen inhalation under normal or positive pressure, and, finally, use of the so-called circulatory stimulants —strychnine, coramine, metrazol, caffeine, and camphor. The last group has little value.

DR. BARR: Dr. Eggleston, I believe, will discuss in detail some of the measures that Dr. Gold has mentioned. It might be interesting, however, to start the discussion of the therapeutic measures with consideration of the mercurial diuretics by Dr. Modell.

DR. WALTER MODELL: Two of the measures which Dr. Gold did not mention in the treatment or prevention of pulmonary edema are the depletion of the stores of water in the body by limiting fluid intake and depletion of the stores of fixed base in the body by limiting the ingestion of salt. Mercurial diuretics accomplish both these ends by different means; they deplete the stores in the body by markedly increasing their elimination.

It is easy to understand how a diuretic might be helpful in relieving pulmonary congestion. The water eliminated as a result of the drug consists in part of fluid removed from the lungs. There are observations on patients with left heart failure which indicate that after diuresis the vital capacity increases. In addition, the use of the mercurial diuretics results in the elimination of occult deposits of fluid in the body, depots which are not clinically apparent; the elimination of these stores of water tends to prevent redistribution of water at night and to prevent the development of paroxysmal nocturnal dyspnea.

What is more difficult to understand is how mercurial diuretics prevent the appearance of paroxysmal dyspnea when no apparent diuresis results from their use. Yet this is a clinical observation.

It is well established that sodium, a fixed base, also fixes water. With the increased elimination of sodium there is usually increased elimination of water. The accumulation of sodium in the body tends to favor the development of edema. It is a common practice to limit the ingestion of sodium in the form in which it is commonly taken—salt—to prevent the development of edema.

Mercurial diuretics have a profound effect on the elimination of sodium chloride. Experiments have shown that after the use of mercurial diuretics the increase of sodium and of chlorides in the urine exceeds the increase in urine production; i.e., in spite of diuresis, the concentration of sodium chloride in the urine is increased. In animals to which mercurial diuretics are given but which show no appreciable diuresis therefrom there is, nevertheless, an appreciable increase of elimination of sodium and chlorides.

A similar observation has been made in man by Blumgart. Here are some rounded figures from his rather extensive protocols. In one instance a normal man, who in a previous twenty-four-hour period eliminated only 1,300 cc. of urine, after 2 cc. of merbaphen (one of the older mercurials), eliminated about 700 cc. more urine, an increase of approximately 35 or 40 per cent. However, the increase in the elimination of chlo-

rides reached 300 per cent, with an almost equal increase in the elimination of sodium.

In another instance, there was only a negligible diuresis after a mercurial, a little less than 7 per cent increase, the twenty-four-hour urine output increasing from 1,800 to 1,880 cc.; yet in the same period the elimination of chlorides was increased from 80 to 130 m.e., more than 60 per cent, and the elimination of sodium rose from 75 to 105 m.e., an increase of about 30 per cent. In still another case, in which in the twenty-four hours following the injection of salyrgan there was a decrease of about 150 cc. in the elimination of urine, the sodium and the chloride elimination increased about 25 per cent.

The driving out of the body of large amounts of sodium by the mercurials may afford some explanation of the clinical finding that patients may be relieved of their paroxysmal dyspnea, although no diuresis is observed. The salt diuresis produced by the mercurials may cause a favorable shift in the water distribution of the body.

The xanthine diuretics have the same potential capacities as the mercurials. They produce diuresis. They increase the elimination of chlorides and increase the elimination of fixed base, and presumably should be just as effective in the treatment and prevention of paroxysmal dyspnea and pulmonary edema. Unfortunately, however, one can rarely give enough of them to produce this effect before minor toxic symptoms appear.

DR. BARR: We have, then, some basis for the use of diuretics in left heart failure. Dr. Eggleston, will you continue the discussion?

DR. CARY EGGLESTON: One of the first things to consider in acute left heart failure is the desirability of reducing blood volume. I am, of course, not speaking of that type of acute heart failure to which Dr. Gold referred and which is seen in cases of massive myocardial infarction and is manifested by the common clinical phenomenon of shock or collapse, but of the acute variety of left heart failure which is manifested primarily either by severe cardiac asthma, or more particularly by pulmonary edema.

The old-fashioned procedure of bleeding, or phlebotomy, is one that has only recently regained adequate recognition. The results of its use are often extremely dramatic. It is necessary, however, if you are going to employ phlebotomy, to do so fearlessly and to withdraw a quantity of blood sufficient to accomplish your purpose, which is to relieve pulmonary congestion. A phlebotomy of less than 300 cc. is seldom significant in its effect.

It is customary to draw at least 500 cc. of blood. This does the patient no harm, and is often productive of a dramatic relief in his symptoms.

If it is inconvenient or impossible to perform an actual phlebotomy, which in itself is a simple process, one can resort to the so-called bloodless phlebotomy—the application of tourniquets to the four extremities as close to the trunk as possible, with progressive release of one tourniquet after another around the circuit of the four extremities. This is as effective in some cases as is phlebotomy, but it carries with it a certain hazard. The too rapid release of these tourniquets is very likely to reinduce the condition for which they were applied.

Morphine is an agent of inestimable value in the treatment of acute left ventricular heart failure, especially in the form just mentioned, with the respiratory manifestations, and at times it is not necessary to go any further than the administration of morphine, perhaps combined with a phlebotomy.

These patients are seriously ill, and they are in great mental distress. Their anxiety may be great and that alone tends to increase or perpetuate their left ventricular failure.

Morphine, then, is a sheet-anchor, desirable immediately and in adequate doses. The adequate dose of morphine is an amount sufficient to accomplish the purpose sought, and it is seldom profitable to begin in an adult with a dose of less than 15 mg. given hypodermically.

Many combine morphine with atropine. Ordinarily the dose of atropine so given is too small to be materially effective. The available tablets that are carried by most physicians contain $^1/_{150}$ of a grain or $^1/_{100}$ of a grain [0.004 to 0.006 Gm.] of atropine combined with morphine. It is necessary to double the larger one of these to make sure of even a moderate effect from the atropine. It is advisable, if one is going to use atropine, to use it as such, so that one can gauge its dose irrespective of the amount of morphine that he has given.

Considerable fear has been expressed that the administration of these large doses of atropine, by releasing vagal control, might increase the heart rate to a detrimental degree. This does not seem to be borne out in practice in the majority of patients and, even if it were an occasional event, it is a hazard that I think should be taken, in the face of the very serious clinical threat of acute pulmonary edema.

Of course, pulmonary edema should be prevented if possible; for this purpose we have several agents available which are more or less effective if appropriately and wisely used.

You have already heard what Dr. Modell said about the diuretics, and I don't think I need to discuss them further, except to say that their value is great, both in the therapy and in the prevention of these consequences of left heart failure.

He is quite right in emphasizing the importance of the mercurials; not because they are usually more effective, but because we cannot conveniently and satisfactorily administer enough of the xanthine diuretics to accomplish the desired purpose and, probably secondarily, because the action of the xanthine is developed much more slowly than is that of the mercurials, at least as observed in clinical practice.

In the treatment of pulmonary edema the intravenous injection of aminophylline is often as dramatic as any other procedure that we can use. The dose should be reasonably large; less than 0.5 Gm. is seldom sufficient. This is best given rather slowly. For that purpose a large syringe having at least a 20 cc. capacity should be connected with a fine hypodermic needle instead of the ordinary intravenous needle that is employed for the purpose of drawing samples of blood or for infusions. The smaller needle serves as an automatic mechanical control upon the rate of injection and permits the gradual injection of 0.5 Gm. of aminophylline over a period of ten to fifteen or twenty minutes.

The action of aminophylline is prompt. It often develops during the injection and lasts for a period long enough to institute other measures of therapy.

Oxygen will be discussed later, so I may omit mention of its undoubted benefits.

Digitalis, in this as in most forms of heart failure, remains perhaps the most important drug, for both the prevention and the control of attacks. Its administration may be by parenteral or oral route.

In all ordinary cases the oral method is adequate, but in cases of patients in extremis it is desirable, if not essential to use the parenteral route, and here I should like to say emphatically that the parenteral route of choice is the intravenous one.

The majority of digitalis glycosides which are injectable are absorbed from the subcutaneous and intramuscular tissues no more rapidly than they are following oral administration. We have a number of pure crystalline glycosides which can be injected intravenously.

We have ouabain, for which the maximal total dose is about 1 mg. given in fractions, the size of the fraction depending upon the urgency of the need—usually not more than 0.5 mg. as the initial fraction, with descending subsequent doses.

The action is developed within a period of from thirty minutes to two hours, and one can repeat the subsequent smaller fractions according to indications.

Several other glycosides are available. Digitaline Nativelle or digitoxin can be administered. Here the total dose is approximately 1.25 mg. This dose, according to the experiences of Dr. Gold, who has made many controlled studies upon the subject, can be administered all at once with little risk. This large single dose is a bit heroic, and few of us would have the courage to employ it unless the patient's life were direly threatened.

Digoxin, another crystalline glycoside, may be used in total doses of 1.5 to 2 mg. intravenously. Again, this is ordinarily subdivided into a large initial fraction and smaller subsequent fractions.

Relatively few of the other glycosides are of sufficient merit therapeutically, or of sufficient constancy in their composition and activity, to justify their inclusion in this discussion. I would repeat what you have heard before, but which cannot be too greatly emphasized: the fact that before resorting to intravenous administration of digitalis glycosides it is essential to investigate the patient's recent history to determine whether or not he has been receiving digitalis. If he has been receiving digitalis, then one may not use the intravenous administration of large doses, or probably not of any doses of digitalis bodies, because of the associated dangers.

If one is particularly well trained in the use of digitalis, however, at times one may begin with small fractions of the total therapeutic requirement of digitalis and build up progressively, observing the responses of the patient carefully so as to avoid the danger of intoxication.

Dr. Gold has wished upon me certain other agents for comment—namely, coramine, strychnine, metrazol, and caffeine—and I am adding camphor merely because I wish to mention it. With the exception of caffeine, these agents are of little or no value and are not really indicated in left heart failure. They have unsatisfactory and fleeting actions upon the heart.

Metrazol and coramine, as well as caffeine, are respiratory stimulants, but their action is brief, and there is little or no indication for stimulation of the respiration in a patient suffering from paroxysmal dyspnea, from so-called cardiac asthma, or from pulmonary edema. He is already doing about as well as he is capable of doing.

Frankly, I don't know very much about the use of coramine or metrazol or strychnine or caffeine in these cases, because they have not served me satisfactorily and I have abandoned their use almost entirely.

I wanted to mention camphor because in the older literature its use was much discussed as an emergency measure in heart failure. One still encounters the effect of this emphasis in the misplaced trust of present-day physicians. I have never seen any lasting benefits from the administration of camphor.

I should like to revert just for a moment to

some remarks made by Dr. Modell on the diuretics, and I should like to ask him, if he has time, to speak of the use of hypertonic solutions of some of the sugars for the prevention of water accumulation, and also the use of urea instead of the mercurial diuretics. Both of these remedies are readily available. I should also like him to speak, if he will, of the absence of the dangers of renal irritation from the proper use of the mercurial diuretics, a subject which is still harassing a good many physicians.

DR. BARR: Dr. Gold has emphasized the fact that left heart failure may be an extremely chronic condition which manifests itself by somewhat minor symptoms over long periods. On the other hand, any one of these patients may at any time develop an acute pulmonary edema which may lead in a few minutes to suffocation. I should like to ask Dr. Eggleston to outline the order in which the remedies for an acute pulmonary edema should be applied.

DR. EGGLESTON: The order consists, as I see it, in the administration of oxygen, morphine, perhaps atropine, aminophylline, and possibly or probably the use of phlebotomy.

I think one has to choose the order of the use of these agents largely on the basis of the availability of the agents and the facilities. Ordinarily morphine is the most readily available. I am speaking now in the broad terms of general availability wherever one may be, whether he is seeing the patient in his home or whether the patient has been rushed to the hospital by ambulance. Morphine is usually immediately available and because of its great value I think it is the practice generally to administer morphine first.

This has another advantage besides availability, in that it tends to alleviate the patient's distress, his psychic as well as his actual physical distress. Then one can proceed to the use of the other measures.

If one has it available, aminophylline is well administered next, intravenously. If not, then phlebotomy, either actual bleeding or bloodletting or progressive application of tourniquets, seems to be in order.

Oxygen should be started as soon as it can be made available and should be continued while other treatments are being carried out.

So I believe we usually should begin drug therapy in the order of the availability of the drugs, and begin the oxygen administration as soon as we can under the circumstances. There are some places so arranged and equipped that oxygen administration can be started almost at once, but these are relatively few and far between. The proper facilities certainly are not to be found in the home, and a good many of these patients will be seen in the home in the "wee sma' hours of the morning," when it is not possible to obtain oxygen promptly. We just can't afford to wait. So begin with the others—morphine, and then, if you will and need to, administer digitalis intravenously. That, of course, presupposes that you have, with you, an available digitalis preparation for intravenous use, which unfortunately a good many physicians do not have.

DR. BARR: If reduction of the blood volume is of surpassing importance in cases of pulmonary edema, should phlebotomy not be instituted early?

DR. EGGLESTON: I think so.

DR. BARR: Is aminophylline as important as phlebotomy in reducing the blood volume?

DR. EGGLESTON: I don't think so, but the immediate effect of the aminophylline is prompt alleviation of respiratory distress, which is the most difficult and pressing problem. It takes so short a time to inject the aminophylline that I think it is an open question whether one should phlebotomize first, or administer the aminophylline first and then, when the patient is a little bit quieter, perform the phlebotomy.

I would remark that the certain indication for phlebotomy is the presence of distended veins.

DR. EPHRAIM SHORR: May I ask the pressure at which you apply the tourniquet?

DR. EGGLESTON: The pressure is just above the diastolic pressure.

DR. C. H. WHEELER: Is there any reason for the use of atropine in pulmonary edema if you give aminophylline?

DR. EGGLESTON: No. I use very little atropine in pulmonary edema, but I felt it should be mentioned because it is so commonly employed.

Atropine, of course, will diminish the secretion from the bronchi, and it tends to relieve the bronchial spasm and possibly some of the vascular spasm in the lungs.

DR. SHORR: What about posture?

DR. EGGLESTON: The patient is, of course, put in the sitting position in bed.

DR. SHORR: How about the legs?

DR. EGGLESTON: You lower them if you can. These patients are so often in such acute distress that the best you can do is to raise the head. If you have a suitable bed you can lower the legs.

DR. MODELL: No one mentioned epinephrine. I wonder if you would expose it.

DR. EGGLESTON: You notice Dr. Modell said "expose" it. Epinephrine is contraindicated. It is contraindicated, first, because if the patient presents peripheral circulatory shock, the epinephrine enhances the degree of shock; second, because if it is effective in raising blood pressure it tends to increase the load on the left ventricle, which has already failed, and the failure of which

is responsible for the symptoms; and, third, because these patients have heart disease of an organic nature which has compromised the left ventricle above the rest of the heart, and there is always the risk of throwing the patient into an arrhythmia which may be of grave significance or even fatal.

DR. MODELL: I am glad to hear the matter discussed. Epinephrine is often used, especially since pulmonary edema is sometimes confused with bronchial asthma.

DR. EGGLESTON: That is an important point.

DR. BARR: Mention has been made of the use of oxygen. Pulmonary edema is one of those clinical conditions in which oxygen is both theoretically and practically indicated. More recently, emphasis has been placed on the desirability of giving oxygen under positive pressure. This has been particularly urged by Dr. Alvan Barach of this city, on the basis of very careful experimental and clinical observations. Dr. George Wolf is prepared to tell us some of the evidence for the use of positive pressure.

DR. GEORGE A. WOLF, JR.: The apparatus used in positive pressure oxygen therapy is designed simply to offer resistance to the patient's expiratory efforts. This is done by adding to the exhaust valve on an ordinary oxygen mask a means of offering resistance to expiration, such as a column of water or a small disk containing holes of various sizes. Altering the height of the column of water, or varying the size of the hole through which the gases escape, will vary the pressure under which the oxygen is applied. By either of these methods oxygen can be given in concentrations of 40 to 100 per cent and under pressures of 5 to 8 cm. of water.

Dr. Gold has already considered the pathologic physiology of pulmonary edema. One additional point, which Dr. Barach mentions in his work, is that the intrathoracic and intrapulmonary pressure becomes lower during an attack of pulmonary edema. This is, presumably, the result of obstruction to inspiration opposed to increased inspiratory effort on the part of the patient. The effect of a negative intrathoracic pressure is to increase the venous return of blood to the right side of the heart. Positive pressure therapy would tend to relieve the negative pressure and thus reduce the return flow of blood to the congested lungs and the already failing left ventricle.

Negative intrapulmonary pressure may withdraw blood from the pulmonary capillaries into the alveoli. The increased capillary permeability coincident with anoxemia of the capillaries has already been mentioned. Oxygen under pressure not only increases the oxygenation of the capillaries but also increases the intra-alveolar pressure, thus inhibiting the formation and facilitating the absorption of the transudate.

Experimental work done by Dr. Barach on human subjects has shown that the application of positive pressure oxygen therapy to patients with moderate cardiac failure increases the arm-to-tongue circulation time and increases the peripheral venous pressure. It has been demonstrated also that the diameter of the small bronchi is increased when oxygen is applied under pressure.

Patients suitable for positive pressure therapy fall into Dr. Gold's second group—that is, those cases in which there is stasis of blood in the pulmonary circulation.

Shock is a contraindication to positive pressure therapy, because of the reduced venous return of blood to the heart.

Dr. Barach states in his paper that under positive pressure therapy pulmonary edema has cleared up in a period of about fifteen minutes in some instances. In several cases the signs of pulmonary edema returned as soon as the positive pressure was discontinued.

DR. BARR: The use of positive pressure in the treatment of pulmonary edema was made by Barach in 1938 and there has been a long latent period in its clinical application. The theoretic considerations which Dr. Wolf has outlined seem sufficiently compelling to merit thorough clinical trial.

Dr. Modell, you were asked some questions.

DR. MODELL: I will try to answer Dr. Eggleston's questions.

One of the controversial points in the mechanism of the production of diuresis is the effect on blood volume. That an increase in blood volume may precipitate left ventricular failure has been emphasized already. Therefore, one must consider the diuretics used in the treatment of pulmonary edema in the light of their effects on blood volume.

There is some evidence that hemodilution may occur after the use of mercurial diuretics. But whatever there is of hemodilution, and consequent increase of blood volume, it is not so great that it produces any detectable embarrassment of the heart when used even in left heart failure. From a clinical point of view mercurials present no dangers in the treatment of pulmonary edema.

Urea is most certainly an effective diuretic. It should not increase the blood volume, because it is a substance which diffuses equally throughout the body and through all membranes, and therefore does not exert any differential osmotic pressure. It does not draw fluid into the capillary bed from the tissues. I can see no theoretic objection to the use of urea in the prevention of pulmonary edema. It is an exceedingly safe and

fairly effective diuretic. But its action is so slow that it has no place at all in the treatment of an acute attack. It is very difficult to administer urea; its taste is almost always a problem which might be insuperable in the management of chronic states of left heart failure.

The intravenous injection of hypertonic solutions of sugars brings up the problem of increased fluid volume. The injection of a concentrated solution into the blood stream draws fluid from the tissues to the blood stream in an attempt to equalize osmotic tension. Therefore, these agents present the hazards which attend increased blood volume.

The danger of mercurial diuretics producing renal irritation or damage is a question which is frequently brought up, but those with wide experience in their use do not feel that there is much danger. The evidence is that as long as the mercurial diuretics produce diuresis, practically all the mercury is eliminated by way of the urine. Only in the absence of diuresis is there the possibility of accumulation.

There are many patients in whom adequate diuresis has followed the regular use of the mercurials over many years, without evidence of kidney damage. Serious renal disease and the absence of response to the mercurial diuretics appear to be the only contraindications to their use. On the other hand, patients with kidney disease may need mercurial diuretics, and I know of some such patients who have benefited from their use.

DR. EGGLESTON: Dr. Modell, I asked that question particularly because these instances of left ventricular failure are so frequently associated with chronic hypertensive cardiovascular disease and it is in those that a great many physicians seem to fear the use of the mercurials, because of the reputed likelihood of adding to the renal damage.

DR. GOLD: Let me add that I think the danger is negligible.

DR. EGGLESTON: I do, too, but I wanted to bring that out.

DR. GOLD: I know of several patients who have received 2 cc. of mercupurin every day or every other day for periods of about three years without trouble.

DR. EGGLESTON: I have had some for longer periods than that.

DR. WHEELER: We have a large number of patients here in the hospital with chronic nephrosis or nephrotic stages of chronic glomerular nephritis, and we have given many of those patients mercupurin repeatedly despite definite impairment of renal function, and never thought it induced any further kidney damage. On the other hand, we have been very careful not to give it to patients with active glomerular nephritis.

DR. JANET TRAVELL: I want to ask if nitroglycerine would relieve the nocturnal pain which Dr. Gold mentioned as one of the clinical varieties of left heart failure.

DR. BARR: I have found nitroglycerine useful in both nocturnal pain and nocturnal dyspnea. The pathogenesis of nocturnal dyspnea is not thoroughly understood, but it may arise in part from defects in the coronary circulation.

DR. EGGLESTON: Incidentally, in connection with this question, the type of patient described by Dr. Gold, who may develop the anginal syndrome from trivial causes, such as slipping off his pillow, may often be relieved by the administration of digitalis, not because the digitalis has any effect upon the coronary vessels but because it relieves the left ventricular failure.

That is not always the case, however, and sometimes the vascular damage is so great that there is no relief of pain from the administration of digitalis, but often these patients will be relatively free from nocturnal anginal seizures when adequately digitalized.

DR. SHORR: Can I ask Dr. Modell what his opinion is of the use of ammonium chloride?

DR. MODELL: Ammonium chloride has three actions. For one, it is a diuretic in its own right; then, as an acid-forming salt it increases the effectiveness of the mercurial diuretics. Another effect comes from the fact that the continued use of the mercurial diuretics drives the chlorides of the blood down to such levels that diuresis no longer can develop. In such cases ammonium chloride serves a third purpose: it supplies chloride without increasing fixed base. Patients who cease to respond to the mercurials, when this is due to low blood chloride levels, will again respond to these agents when some chloride, and in some instances even sodium chloride, is administered.

DR. BARR: Do you wish to close the discussion?

DR. GOLD: I might say just a word about the protracted treatment of the patient with left heart failure.

Perhaps most of our discussion today has centered on the acute attack. That is quite all right. It is a very important problem, since patients sometimes die in an acute attack. I'd like to focus more light on the patient who suffers repeated attacks of pulmonary edema and has many symptoms of left heart failure between the attacks. As far as I am able to judge, this patient is not very well treated at the present time. Here is, first of all, a problem of prevention. I believe the mercurial diuretics, and possibly also urea, have a more important place as measures for the maintenance of improvement in patients with left heart failure than even digitalis. Not that digitalis should not be used, but

we have more often been successful in maintaining a state free of paroxysms of dyspnea and pulmonary edema with continued diuretic treatment than with digitalis. That means a dose of mercupurin or salyrgan with theophylline as often as every day, or two, three, or four times a week, by intravenous or intramuscular injection. Such frequent injections present a real problem. In selected cases we may depend upon the mercurial suppository.

Active and persistent dehydration is more important than almost any factor I know of in maintaining the patient with left heart failure in the best possible state; that is, in a state that is least susceptible to attacks of pulmonary edema and paroxysmal dyspnea.

DR. TRAVELL: If, as Dr. Gold has indicated, mercupurin or a similar mercurial diuretic is the most important agent in the treatment of chronic left heart failure, and if the chief objection to its use is the expense of intravenous administration by a physician, would it not be feasible to teach the patient to give himself a daily intramuscular injection just as in the case of insulin in the diabetic? Small doses may be given by intramuscular injection without producing undue local irritation, and the intravenous route is neither essential nor more effective. Dr. Modell has demonstrated, in patients with chronic congestive heart failure, that the diuretic efficiency per cc. is greater for a 1 cc. than for a 2 cc. dose of mercupurin, and it might be expected, therefore, that a patient might be maintained in a satisfactory state by a smaller total dose of mercupurin if this were given daily rather than at longer intervals.

DR. GOLD: I should like to point out an analogy between the use of this drug and that of digitalis. When a patient has been rendered edema-free by digitalis, no one would now consider discontinuing the drug. Why should one do so in the case of mercupurin?

Yes, it may indeed be a satisfactory solution in some cases to teach the patient to inject it himself.

Summary

DR. GOLD: In the conference this morning consideration was given to some of the special manifestations of so-called left heart failure and their treatment. From the physiological standpoint, the noteworthy abnormality is failure of the left ventricle adequately to drain the veins and capillaries of the pulmonary circuit. The result is stasis and interference with respiratory function. There is congestion, but not of the type usually associated with congestive heart failure, for there may be no edema of the legs or enlargement of the liver.

Several clinical varieties of left heart failure were described, distinguished by the presenting symptoms. Those subject to attacks of pulmonary edema or paroxysms of nocturnal dyspnea are best known. Many cases of left heart failure, however, present less dramatic symptoms; these are often overlooked in their proper relationship to failure of the left ventricle. As a result they are often erroneously treated for other conditions. Such patients may present only shortness of breath, especially when they lie down. Another outstanding symptom may be cough, also more pronounced when they lie down, or attacks of cardiac pain which, again, are most disturbing when they go to sleep at night.

The measures used in the treatment of acute pulmonary edema caused by left heart failure were outlined. They include morphine, atropine, aminophylline, digitalis, oxygen, phlebotomy, and bloodless phlebotomy. Camphor, coramine, and metrazol appear to be of little value. The view was expressed that 0.5 Gm. aminophylline injected slowly intravenously sometimes produces striking relief from the sensation of suffocation. Ouabain is the drug of choice among the digitalis preparations in this condition, and the dose suggested was 0.5 mg. intravenously if the patient is not under the influence of digitalis. The use of oxygen under 5 to 8 cm. of positive pressure offers advantages in acute pulmonary edema. The mechanism of its action was discussed. Phlebotomy sometimes produces dramatic relief if large quantities, at least 500 cc., of blood are withdrawn. Atropine is not very important, but it reduces that part of the pulmonary fluid which is due to excessive secretion of the bronchial glands. It does not influence the vascular transudate. It is advisable to give the atropine separately rather than in combination with morphine, in order to be able to adjust the dosage independently of the dose of morphine.

Emphasis was placed on the prolonged use of the organic mercurials in the prevention of attacks of pulmonary edema and in the control of symptoms due to left heart failure. The suggestion was made that the diuretics may be more important than any other medicinal agent for this purpose. Problems relating to their administration were discussed.

Clinicopathologic Conferences

DEPARTMENTS OF MEDICINE AND PATHOLOGY, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, COLUMBIA UNIVERSITY

Conducted by: MAURICE N. RICHTER, M.D.

Date: October 19, 1943

History

Case J73878

DR. LAWRENCE MEYERS: A 19-year-old white girl was first admitted to the New York Post-Graduate Hospital in November, 1937, with a large swelling of the right mandible and enlarged, tender cervical nodes on the same side. A diagnosis of chronic osteomyelitis of the right mandible was made. The spleen was moderately enlarged at the time. A sequestrectomy was done on November 6, 1937.

A check on her previous hospital admissions revealed that she had been in Grasslands Hospital on November 9, 1927, with a history of swollen glands of one year's duration. A lump in the right shoulder was found at that time, and a section of it was removed. A diagnosis of tuberculosis of the eighth and ninth dorsal vertebrae, tuberculous adenitis of the neck, and hilar tuberculosis was made. She was confined to bed in a Bradford frame and given ultraviolet therapy.

In May, 1928, she developed a mass along the right mandible, which drained for a long period of time. She also developed subcutaneous abscesses of the left tibial and inguinal regions, which were excised and drained for some time. The patient was discharged in April, 1930.

She was readmitted to Grasslands in July, 1930, with several new abscesses. No tubercle bacilli were found in the pus. She had draining sinuses of the hip, groin, and jaw. The patient was discharged in February, 1932.

Her third admission to Grasslands was in 1934, with multiple chronic osteomyelitis involving the right jaw, sternum and clavicle, and hip; a draining sinus was still apparent in the right buttock. She was admitted at that time with a questionable acute condition in the abdomen, but a barium enema revealed little else than a redundant colon. An osteotomy was done on the mandible at the time; it revealed chronic osteomyelitis with new bone formation.

The patient's next Post-Graduate Hospital admission was on September 21, 1939, for an impacted third molar on the right side, which was extracted under anesthesia, and the patient was discharged. Henceforth she was seen in the Surgical Clinic of this hospital.

Her final hospital admission was on February 8, 1943, at which time she complained of a continuous dull pain in the lumbosacral area. The pain involved the right hip and radiated down the anterior surface of the thigh to the knee. She was forced to remain in bed for two weeks before admission, during which time she had marked anoxia, loss of weight, nausea, and vomiting. Her urine appeared to her to be cloudy, and she was markedly constipated.

Physical Examination.—Physical examination revealed a 19-year-old white female, well developed but poorly nourished and appearing chronically ill. There were scars over her right clavicle, mandible, spine, and back. Temperature was 101 F., pulse 104, respirations 24, and blood pressure was 110/70. The positive findings included bilateral exophthalmos. The thyroid was bilaterally enlarged, smooth, and symmetrical, with a palpable isthmus. There was kyphosis and scoliosis of the thoracic spine. Examination of the lungs revealed dullness to percussion over the right posterior midlung field. Examination of the heart revealed a sinus tachycardia. The liver was 4 fingerbreadths below the costal margin. The spleen tip was palpable. There was pain on pressure over the right inguinal region. Examination of the extremities revealed limitation of motion, rotation, abduction and adduction, and pain on flexion of the right thigh.

Significant Laboratory Data.—February 8, 1943—Blood count: red blood cells 4,370,000, hemoglobin 10.8 Gm. (65 per cent), leukocytes 18,800, polymorphonuclears 82 per cent, basophils 1 per cent, lymphocytes 10 per cent, monocytes 7 per cent. Blood chemistry: cholesterol 140 mg. per cent, esters 75 mg. per cent, sedimentation rate 119 mm. per hour. Urinalysis: 3 plus protein, occasional hyaline and squamous casts. Basal metabolic rate: plus 15 per cent.

February 10, 1943—Blood chemistry: Hanger test 2 plus; Congo red test revealed no dye in the second specimen of blood; total proteins 6.9 Gm. per cent, albumin 3.6 Gm. per cent, globulin 3.3 Gm. per cent, ratio 1.1 per cent.

March 8, 1943—Blood chemistry: urea nitrogen 77.5 mg. per cent, creatinine 4.5 mg. per cent, chlorides 490 mg. per cent, total proteins 5.8 Gm. per cent, albumin 3.6 Gm. per cent, globulin 2.2 Gm. per cent.

Urinalyses: summary of urines examined during hospital stay: 3 to 4 plus protein, occasional hyaline casts.

Blood counts: the red blood cells averaged between 3.8 and 4.3 millions; hemoglobin 68 per cent; white blood cells ranged from 18,800, with 82 per cent polymorphonuclears on admission, up to 21,500, with 87 per cent polymorphonuclears before death.

Summary of X-ray Findings.—First Post-Graduate admission, November 8, 1937, x-ray of mandible: low-grade osteomyelitis, inferior margin of right mandible. Third Post-Graduate admission, February 8, 1943, x-ray of dorsal spines: moderate deviation of dorsal spine to right. Thorax short in its vertical diameter. X-ray of chest: increased hilus markings. Peripheral lung fields clear. Moderate increase in mediastinal density. X-ray of pelvis: postural asymmetry with apparent rotation of pelvis. No other abnormalities. February 13, 1943, x-ray of dorsolumbar spine: kyphotic tendency in mid-lower dorsal area. Lordotic tendency beginning at dorsolumbar junction. Pronounced narrowing of intervertebral disks in mid-dorsal region. Details of spinous processes of fourth to eighth dorsal vertebrae are lost. Scout film of abdomen: liver and spleen enlarged.

Course in Hospital.—The patient ran a continuous febrile course while in the hospital, the peak being at 103 F. on the second day. On the third hospital day an attending physician visited her and found marked tenderness and spasm over the right side of the abdomen and in the right lumbar region, a sensation of fullness being obtained in this area. It was suggested that the case was one of perinephritic abscess or acute appendicitis. A surgical consultation was requested. The surgeon suggested orthopaedic consultation. Meanwhile the patient remained tender in the above described areas and was growing weaker. The orthopaedist attributed all the findings to Pott's disease.

An exploratory laparotomy was performed on the sixth hospital day and no abscesses or localized infectious areas were found. A biopsy of the liver was taken.

The patient still ran a septic course, and then developed a cough productive of reddish mucoid material. There were moist rales throughout both lung bases, there was a tachycardia, and the abdomen was markedly distended. Also she had developed pitting edema of the ankles, legs, and sacrum. She was digitalized and given an expectorant. In spite of medical therapy, the patient's course was gradually downhill, with occasional short periods of subjective symptomatic improvement. With increasing nitrogen retention, the patient developed generalized convulsions on two occasions. On the second one she became cyanotic and expired on the forty-seventh hospital day.

Clinical Diagnosis.—Osteomyelitis (inactive), probably pyogenic, possibly tuberculous. Amyloid disease of the liver, spleen, and kidneys. Uremia. Inanition. Hypostatic bronchopneumonia.

Discussion

DR. MORTON F. MARK: On her last admission to the hospital, this patient was obviously suffering from at least two conditions—one, an infectious process as evidenced by the febrile reaction and leukocytosis, and the other, amyloidosis with renal insufficiency and uremia. Her principal complaint was pain in the right lumbosacral region, radiating down the right thigh. This was associated with tenderness and muscle spasm on the right side of the abdomen and in the right lumbar region, with limitation of motion at the right hip joint. X-rays of the pelvis, femur, and lumbar spine were negative. Intra-abdominal abscess or infection was ruled out by operation. The only positive finding was the lesion of the dorsal spine. It is reasonable to assume that the patient's symptoms were in some way related to the spinal disease. In this connection, the probability of an abscess or draining sinus extending from the dorsal spine into the lumbar muscles comes to mind.

The nature of the spinal lesion is subject to some speculation. The possibilities are Pott's disease, chronic pyogenic osteomyelitis, syphilis, and actinomycosis. Tuberculosis of the spine is common, whereas the other conditions are rare in this location. Syphilis can be ruled out by the negative Wassermann tests, and actinomycosis can be reasonably well excluded by the previous pathologic study of the material removed from the right mandible. The principal differentiation, therefore, lies between Pott's disease and chronic pyogenic osteomyelitis. On the basis of the relative frequency of the two conditions, one is inclined to think of tuberculosis as the probable causative factor. However, if we consider the past history, certain objections to this diagnosis can be raised.

The patient's history goes back to 1927—a period of sixteen years. She first came under observation at another institution, and at that time she had enlarged right cervical nodes and the lesion of the dorsal spine, both of which were

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mentioned in the literature in association with amyloidosis.

DR. MAURICE BRUGER: Would Dr. Mark discuss the presence of bilateral exophthalmus in this case?

DR. MARK: The basal metabolic rate was only plus 15 per cent. Since the patient also ran a febrile course, we cannot say too much about elevated metabolism here. I believe loss in body weight may in part account for the proptosis.

DR. BRUGER: Were any exophthalometer readings made?

DR. MEYERS: The right eye was 24 mm. and the left eye 23 mm.

DR. BRUGER: These figures are definitely abnormal, and speak for a true exophthalmus. Do you believe the thyroid gland may contain amyloid deposits?

DR. MARK: Only on rare occasions is the thyroid gland involved in amyloid disease.

DR. RICHTER: We have not observed amyloid deposits in the follicles.* However, the blood vessels within the thyroid gland may contain such deposits. Do you believe that the patient had thyrotoxicosis?

DR. BRUGER: I don't think so.

DR. RICHTER: Can you tell me from the record if the patient ever had hyperglycemia or glycosuria?

DR. MEYERS: No abnormal amounts of sugar were found in the blood or urine.

Pathology

DR. RICHTER: There was kyphosis, as noted clinically, with partial destruction of the anterior portion of the fourth dorsal vertebra, and the formation of bony bridges with the adjacent vertebral bodies. The paravertebral tissues were markedly thickened, both in the abdominal and thoracic portions. In various parts, these tissues contained numerous small abscesses, the largest being in the right lumbar region and replacing most of the right psoas muscle. The left psoas muscle was replaced in large part by dense fibrous tissue, presumably the end result of previous inflammation. In the thoracic region, the fibrosis of paravertebral tissues extended to include the tissues around the superior and inferior vena cavae.

Additional inflammatory disease was found in the left lung, in which there was an abscess in the left lower lobe, surrounded by an area of organizing pneumonia.

The spleen was enlarged, and weighed 730 Gm. The cut surface showed many translucent nodules of small size, which gave the characteristic reaction of amyloid when treated with iodine solutions. The liver was also enlarged, with a similar translucence due to amyloid.

Microscopically, amyloid was also found in several other situations, including the adrenals and kidneys, which were extensively involved, and the pancreas, stomach, colon, and pituitary, in all of which the deposit was slight. In the pancreas, the site of amyloid deposition was in the islets. This is of interest, in view of recent reports that the islet lesion commonly found in diabetes is amyloid, not hyaline as formerly thought.

There are two additional features of interest. First, there is intimal calcification of the arteries of the heart, thyroid, psoas muscles, and the thymic region. This, presumably, is a form of metastatic calcification following the destruction of bone. It is not associated with arteriosclerosis and does not compromise the lumina of the vessels.

The second feature is the presence of an inflammatory reaction in the same vessels in which calcification occurred, in addition to small vessels, especially in the psoas muscle, in which no calcium was found. This reaction is accompanied by the presence of neutrophilic and eosinophilic leukocytes in and around the vessel wall, with small areas of fibrinoid necrosis of the wall. This lesion is identical with that of periarteritis nodosa.

Intimal calcification is not the ordinary sequel to periarteritis nodosa. The relation of the two conditions in the present case is not clear, but it is of interest to note that substances other than calcium are often deposited in inflamed tissues, and the possibility must be considered that a similar mechanism was operative in this case.

On the negative side, it should be recorded that tuberculosis was not found, and the thyroid gland showed no evidence of hyperplasia.

Pathologic Diagnoses:

Chronic osteomyelitis of mandible, clavicle (right), pelvic bones, clinical.
Obsolete operations: multiple incisions and osteotomy for osteomyelitis.
Fibrosis of psoas muscle, left (healed abscess?).
CHRONIC OSTEOMYELITIS OF DORSAL SPINE.
Kyphosis of dorsal spine.
Paravertebral abscesses.
Psoas abscess, right.
Metastatic calcification of arteries of heart, thyroid, thymus, psoas muscle.
Abscess of lung, left lower lobe, due to Staphylococcus albus and aureus.
Chronic pleuritis, left.

*An article on "Amyloid Goiter" by G. A. Walker appeared in Surg., Gynec., & Obst. 75: 374 (1942).

considered tuberculous in nature. However, a short time later she developed osteomyelitis of the mandible and then, during the next few years, multiple osteomyelitic foci involving the sternum, clavicle, hip, and probably also the left tibia. The lesion of the mandible was proved definitely to be caused by pyogenic osteomyelitis, by pathologic study of material removed at operation. The complete healing of the other bony structures, as indicated by the normal findings on x-ray during the time of her last admission, the absence of tubercle bacilli on culture of the pus from the abscesses, and the absence of joint involvement all speak for a pyogenic rather than a tuberculous osteomyelitis.

It is logical to attempt to fit all the findings into one disease picture, and therefore it is reasonable to assume that the spine was also affected by a pyogenic osteomyelitis. The only fly in the ointment, as it were, is the previous diagnosis of tuberculous adenitis. If tuberculous adenitis were really present, then we would not be justified in considering the spine lesion as nontuberculous. However, we do not know whether definite evidence for tuberculous adenitis was established, and it is quite possible, even likely, that this diagnosis was erroneous. The glandular enlargement might very well have been secondary to an infectious lesion in the mouth—possibly a silent osteomyelitic focus of the mandible.

In my opinion, this patient had a chronic pyogenic osteomyelitis of the spine which was quiescent for a number of years but became reactivated during her last illness. In support of this conclusion, the high temperature and leukocytosis speak for a pyogenic rather than a tuberculous infection. The present x-ray findings are not conclusive, since both conditions may be strikingly similar.

Amyloidosis was very probably already present on the patient's first admission to Post-Graduate Hospital in November, 1937, since at that time she already had an enlarged spleen and albuminuria. If a Congo red test had been done, the diagnosis very likely would have been established. The Congo red test is a very simple procedure and accurate to a remarkable degree if properly interpreted. Bennhold originally considered a 60 per cent absorption of the dye as indicating the presence of amyloid disease, but investigations by Lipstein and Auerbach showed that there must be at least 90 per cent absorption before the diagnosis can be established definitely. Generally, there is 100 per cent absorption, as was the case in this instance when the test was finally performed during the last admission. The findings of an enlarged liver and spleen and albuminuria indicated that amyloidosis of the liver, spleen, and kidneys existed. From the clinical picture we are unable to state what other organs may have been involved. Amyloid deposits may occur in almost any organ or tissue of the body. In the order of frequency, the organs involved are the spleen, liver, kidneys, adrenals, and lymph nodes. Renal insufficiency and uremia occurring in the course of renal amyloidosis was once considered a rarity, but in recent years there have been an increasing number of reports on this subject in the literature. A few years ago, Dr. Mosenthal and I reviewed 93 cases of renal amyloidosis that had been observed at Sea View Hospital and found an incidence of renal insufficiency of almost 30 per cent. Furthermore, it was noted that the tendency in renal amyloidosis was toward a progressive impairment of renal function, and the longer the duration of amyloid disease the more likely it was that the patient would develop uremia. The reason that more of these patients do not develop renal insufficiency is that they die of their primary disease before the amyloid process has become sufficiently advanced.

The renal insufficiency occurring in the course of renal amyloidosis is generally associated with a normal blood pressure and no eyeground changes. No adequate explanation has been given for this. Only 3 of the cases that we observed had hypertension, and 2 of these had contracted amyloid kidneys in contradistinction to the usual finding of large, smooth, waxy kidneys.

The edema which this patient developed terminally cannot be explained on the basis of amyloidosis. Although the serum protein concentration was below normal, it was not sufficiently low to be the responsible factor. The distribution of the fluid in the dependent portions of the body and the associated moist rales in the lungs suggest that the edema was cardiac rather than renal.

To recapitulate, it is my impression that this patient, at the time of death, had a reactivated chronic pyogenic osteomyelitis of the spine with probable secondary abscess formation in the lumbar muscles. Second, she had amyloidosis with renal insufficiency and uremia.

DR. TERESA MCGOVERN: Could brucellosis have accounted for a number of these signs?

DR. MARK: I don't know enough about it to say.

DR. MAURICE N. RICHTER: An article about bone lesions in brucellosis appeared in the *J.A.M.A.* Do you think that the amyloid disease was associated with brucellosis?

DR. MCGOVERN: If it is a chronic brucellosis of long standing, I don't see why it could not occur.

DR. RICHTER: Our own experience with brucellosis is very meager, but the disease is not

Postgraduate Medical Education

Programs arranged by the Council Committee on Public Health and Education of the Medical Society of the State of New York are published in this section of the JOURNAL. *The members of the committee are Oliver W. H. Mitchell, M.D., Chairman (428 Greenwood Place, Syracuse); George Baehr, M.D.; and Charles D. Post, M.D.*

Lecture on Rheumatic Heart Disease

A LECTURE entitled "Rheumatic Fever—Rheumatic Heart Disease" was presented to the Jefferson County Medical Society on Thursday, November 11. The instruction took place at the Black River Valley Club, Watertown, at 6:30 P.M.

The speaker was Dr. J. G. Fred Hiss, professor of clinical medicine at Syracuse University College of Medicine in Syracuse.

This instruction was presented as a cooperative endeavor between the Medical Society of the State of New York and the New York State Department of Health.

"DOCTOR JONES" SAYS—

My fourth year in medical college the professor of surgery got one of the students up in front of the class to strap up a shoulder dislocation or something with adhesive plaster: strips two or three feet long. He was a tough old boy, this professor was, and the student was kind of nervous. Well, sir, those strips of plaster—they stuck to everything he didn't want 'em to and it wasn't long before he had himself generally tangled up in 'em—this student did. And the more the professor and the rest of us laughed the worse off he got. And, you know, that's some like we get tangled up in statistics now and then.

I was thinking about this question of the incidence of syphilis. Various statisticians have been quoted as saying that one adult in every ten either's had syphilis, has it now or will have it in the future if the present rate of infection keeps up. A paper some time back by a professor of public health—he said that was misleading because syphilis was largely a negro problem.

Of course I can see how a lot of folks, say in a place like this with a couple thousand population, if they read that one-in-ten statement they'd figure there must be two hundred of their neighbors marked for syphilis—for it or by it. And I s'pose some of 'em would start trying to decide which ones were "it." And if there was any such number as that it'd be an alarming situation: something to start having mass meetings about.

Anyway, he pointed out—this professor did—that the selective service figures from 1940 to 1942 showed that the syphilis rate was at least ten times higher for negro men than for white. Colored men 18 and 19 years old—he said syphilis was second as a cause for rejection and for white men it wasn't among the first ten causes. Looking at it that way you'd say the problem was largely in some of the southern states where they have a big negro population. Here in upstate New York colored people only make up something like two per cent of the population.

But the other side of it: there are a lot more white people in this country than there are colored. And, even if the proportion of cases among 'em was only a tenth as great, that don't mean they haven't got plenty of syphilis. Thirteen thousand cases a year—they tell me that's about the number reported here upstate and I don't s'pose that's half of 'em. It don't make much difference to them whether they're one in ten or one in fifty. And what they've got is more important than what color their skin is. I think the problem'll stand a little more clarifying.—*Paul B. Brooks, M.D., in Health News*

DO YOU IMPROVE YOURSELF?

The want of energy is one of the main reasons why so few persons continue to improve in later years. They have not the will, and do not know the way.

They "never try an experiment" or look up a point of interest for themselves; they make no sacrifices for the sake of knowledge; their minds, like their bodies, at a certain age become fixed. Genius has been defined as "the power of taking pains"; but hardly anyone keeps up his interest in knowledge throughout a whole life. The troubles of a family, the business of making money, the demands of a profession destroy the elasticity of the mind. The waxen tablet of the memory, which was once capable of receiving "true thoughts and clear impressions," becomes hard and crowded; there is no room for the accumulations of a long life. The student, as years advance, rather makes an exchange of knowledge than adds to his stores.—*Jowett's Introduction to Plato.*

Organizing pneumonia, left.
AMYLOIDOSIS OF LIVER, SPLEEN, KIDNEYS, ADRENALS, STOMACH, COLON, PANCREAS, PITUITARY.
Periarteritis nodosa (heart, thyroid, thymus, psoas muscle).
Constriction of inferior and superior venae cavae due to perivascular fibrosis.
Anasarca.
Ascites.
Edema of lungs.
Edema of brain.
Arteriolar sclerosis of kidney.
Recent operation: exploratory laparotomy, biopsy of liver.
Fibrous peritoneal adhesions.

DR. BRUGER: Clinically, this patient did not present the classical manifestations of periarteritis nodosa.

DR. RICHTER: It is not uncommon to find the lesions of periarteritis, often of limited distribution, in patients who have not had symptoms of the disease.

DR. ABRAHAM A. LEVY: You said something that might account for the exophthalmus—that is, the involvement of the pituitary gland with amyloid.

DR. RICHTER: Such deposits were only of slight extent.

DR. BRUGER: It is an interesting assumption that the involvement of the anterior pituitary was associated with an increased output of thyrotropic factor, thus accounting for the exophthalmus.

DR. RICHTER: It would be stretching a point, in view of the minute amount of amyloid in the pituitary.

DR. BRUGER: Definitely, in view of the fact that the adrenal glands, which were considerably more involved with amyloid, failed to produce clinical signs of altered adrenal activity.

DR. MARK: We have seen many tuberculous patients with amyloid disease in whom the adrenals were involved just like this, without evidence of Addison's disease.

DR. RICHTER: In tuberculosis of the adrenals, symptoms of Addison's disease do occur, associated with extensive destruction of the adrenal cells.

Amyloid disease of the adrenal may be extensive without as complete obliteration of the parenchyma.

DR. BRUGER: In view of such marked amyloid deposits as shown in this case, I would expect even the four-minute control blood collected after the injection of the Congo red to show almost complete absorption. I have seen this before.

DR. MARK: In my experience, such rapid absorption of the dye is very rare.

DEADLINES FOR APPLICATIONS FOR EXAMINATIONS IN OPHTHALMOLOGY

The American Board of Ophthalmology has announced that applications for the examination to be held in June, 1944, in New York City should be received no later than December 15, 1943.

Applications for the examination to be given in Chicago in October, 1944, should be received by April 1, 1944.

All applications received after January 1, 1944, will be subject to the increased total fee of $75.00.

Applications should be addressed to the American Board of Ophthalmology, 6830 Waterman Avenue, St. Louis, Missouri.

ENVIRONMENTAL INFLUENCE ON TUBERCULOSIS

Tuberculosis is an infectious disease, but it is not to be confused with the acute infectious diseases in which the microbiologic agents, bacilli, protozoa, or viruses, dominate and determine the course and final outcome of the disease, mostly in a few days or weeks. Tuberculosis is a very chronic disease, the subsequent course of which, after the primary infection has taken place, is determined by the social environmental conditions under which the individual is compelled to live, as well as by his hereditary constitution.—G. WOLFF and A. CIOCCO, *Amer. Rev. of Tuberc., August, 1942*

JAPANESE SEEK SUBSTITUTE FOR QUININE

The Japanese, who now have a corner on the world's supply of quinine, the most effective drug in the treatment of malaria, are reported to be hunting high and low for a passable substitute. They disclosed this themselves in numerous recent propaganda broadcasts in which they also announced that they had already "discovered" one or two obviously unsatisfactory substitutes.

These announcements are accepted in official Dutch quarters as evidence that the Japanese are seriously considering the possibility that they may be driven out of Java. In fact, no other interpretation could be placed upon the reports, for in peacetime Java, the most important of the East Indies islands, provided 95 per cent of the world's requirements of quinine.

Expeditionary Forces as commanding officer of Base Hospital No. 3, with the rank of lieutenant colonel.

In 1915 he went to Russia and the Balkans as a member of the American Red Cross Sanitary Commission.

His appointment to the Office of Civilian Defense as Chief Medical Officer in the present war led to a visit to England and Scotland, where he studied the British technic of handling wartime casualties. His observations in England were utilized later in the organization throughout the United States of emergency rescue and hospital facilities in case of similar eventualities in this country.

New Society for Plastic Surgery Holds First Annual Meeting

THE first annual meeting of the American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, Inc., was held on November 12 in New York City.

A clinic and business meeting at Manhattan General Hospital during the day and a scientific meeting at the New York Academy of Medicine in the evening comprised the Society's program.

Dr. Romeo Luongo, in delivering the president's address, declared that when many men in military service come back "with disfiguring scars about the head and neck, it is our duty to have ready as many specially trained surgeons as possible throughout the country so that they will be able to give these boys a new lease on life and a better outlook on society."

This new society has been organized for the purpose of spreading education among the professions generally regarding technics relating to the heretofore more or less secret art of plastic surgery.

"There are far too few men in this country," said Col. Samuel J. Kopetzky, (MC), "prepared to undertake reconstructive surgery, not only for the general public but specifically at this time for the men in the armed forces, who will soon be coming home and needing this service. There are entirely too few places where this kind of surgery can be done. For the eager, willing, and basically trained student, there are too few places where the technic and fundamental principles can be either taught or learned. There are accredited medical societies of men who have devoted the major portion of their professional lives to plastic surgery but it has been apparent that these have developed a tendency to extreme exclusiveness.

"Only those," Colonel Kopetzky added, "who are by training and experience competent to understand the pathology of diseases of the ear, nose, and throat can, with additional training and added experience, competently do the necessary things which are implied in plastic and reconstructive surgery of the ear, nose, and throat."

Dr. Samuel Fomon, another speaker, pointed out that opportunities exist to gain proficiency in all technics except those pertaining to plastic surgery. "Here," he said, "doors are too often shut, postgraduate education has been neglected, and details of technic are guarded by the few who practice the art.

"Plastic surgery has expanded so rapidly in the last twenty-five years that the time is ripe for wider teaching of the subject. A knowledge of plastic surgery is essential to the planning of all operations about the head and neck, since a poorly planned primary operation may ruin the chances for a successful reconstruction.

"In the face of the chaos of material and human destruction brought about by the exigencies of war, plastic surgery of the head and neck looms into sharper focus; and with the urgent shortage of trained men, a great responsibility falls upon the surgeon specializing in the ear, nose, and throat to do his part in rehabilitating those human wrecks that fall within his field."

Dr. Fomon pointed out that resistance would be encountered to the purposes of the Society, which is composed entirely of doctors who have been recognized as specialists by the American Board of Otolaryngology. Some opposition is of course to be expected.

Directors of surgical departments in hospitals may oppose making further subdivisions in their departments, he said, and established plastic surgeons, short-sightedly, may feel that their specialty is encroached upon. All opposition must give way, he stated, when it is realized how extensive are the added benefits to the patient when the surgeon trained in the ear, nose, and throat specialty combines his skill with plastic procedures.

Officers of the Society are: Dr. Romeo Luongo, of Philadelphia, president; Dr. Morris S. Bender, of New York City, vice-president; Dr. Jacob Daley, of New York City, secretary; and Dr. Nathan Settel, of New York City, treasurer.

New Journal Sheds Light on Soviet Medicine

THE first number of the *American Review of Soviet Medicine*, which appeared on October 25, featured papers by Dr. E. I. Smirnov, executive director of the Red Army Medical Corps, and Dr. Nikolai N. Burdenko, chief surgeon of the Red Army. Dr. Smirnov's paper revealed for the first time the prewar plans made for the care and hospitalization of the wounded, their shortcomings under actual battle conditions, and their subsequent drastic revision to meet the exigencies of mobile defense and attack. Dr. Burdenko, who has recently been granted honorary membership in the International College of Surgeons, discussed the effects of frostbite on the nervous system.

Sharply contrasting points of view on restorative surgery of peripheral nerve lesions were presented by Dr. Vladimir V. Lebedenko and Dr. N. I. Propper-Grashchenkov. Dr. Lebedenko disputed the prevailing view that three months must elapse after injury before restorative surgery may be undertaken, while Dr. Propper-Grashchenkov holds that the long time lag is essential and that defects may be remedied by nerve transplantation.

Dr. Spasokukotski's revolutionary method of feeding during operations on penetrating abdominal wounds was described in a paper by Dr. V. A. Panikov. The method consists of introducing a mixture of eggs, milk, distilled alcohol, and other foods into the abdomen during surgical interference and is said to have produced remarkable results.

The issue also contains three survey papers: "Cancer Research in the Soviet Union," by Michael B. Shimkin, M.D., past assistant surgeon, National Cancer Institute, Bethesda, Md.; "Physical Culture in the Soviet Union," by Percy M. Dawson, M.D., professor of physiology, Duke University,

Medical News

Annual Meeting of A.M.A. in Chicago June 12–16

THE annual session of the American Medical Association in 1944, which had been scheduled to be held in St. Louis, has been changed by the Board of Trustees of the Association so that it will now be held in Chicago June 12 to 16, the *Journal* of the Association announced in its November 6 issue. The change, according to the announcement, was necessary because of information received that it would not be possible for St. Louis to provide adequate hotel accommodations.

The meetings of the House of Delegates of the Association will be held at the Palmer House and the Scientific Exhibit will be installed in that hotel.

The Technical Exhibit will be housed at the Stevens Hotel.—*A.M.A. News*

American Medical Association 1944 Scientific Exhibit

THE Scientific Exhibit at the Chicago Session of the American Medical Association, June 12 to 16, 1944, will be held at the Palmer House. Exhibits will cover all phases of medicine and the medical sciences with particular emphasis on graduate medical instruction for the general practitioner.

Application blanks for space in the Scientific Exhibit are now available.

These blanks may be obtained by communicating with the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

Federal Funds for Relocation of Physicians

THE President has transmitted to the Speaker of the House of Representatives supplemental estimates for the Public Health Service amounting to $4,427,550," the *Journal of the American Medical Association* for October 16 reports. "Of this sum $2,350,000 will be used, it is proposed, for an extended program of malaria control for the United States' share of a joint Anglo-American venereal disease control program for the protection of soldiers stationed in the Caribbean area 'and for the supplying by the Public Health Service, on request of state authorities, of needed medical and dental care, either by temporary financial aid or by direct employment of doctors and dentists, in certain critical areas where acute shortages have developed which cannot be met without recourse to emergency measures.' The transmitted estimates, pending in the House Committee on Appropriations, contain the following proviso:

"*Provided*, That the Surgeon General is authorized, on request of a state health department, (1) to assign medical and dental personnel of the Public Health Service to areas found to be in critical need of additional medical and dental services, such services to be furnished the public in accordance with schedules of fees approved by the state health department and the Surgeon General of the United States, which fees shall be collected by, and used at the direction of, the state departments of health, to defray the expenses thereof incident to the rendition of such medical and dental services, the balances at the end of the fiscal year to be covered into the treasury as miscellaneous receipts, and (2) to enter into agreements with private practicing physicians and dentists under which, in consideration of the payment to them of a relocation allowance not to exceed $250 per month for three months and the actual cost of travel and transportation of the physician or dentist and his family and household effects to the new location, such physician or dentist will agree to move to and engage in the practice of his profession in such area for a period of not less than one year.

"Strictly as a war measure, the technic proposed may be the only possible answer to the needs of certain areas in the United States which are now without medical service. The appropriation is to be used for this purpose only for the present fiscal year. Whether or not physicians can easily be found to meet this need; whether or not the time has come to discard the mechanisms thus far prevailing in meeting this need; whether or not state health departments can be helpful in assuming this function, are questions which remain to be answered if the Congress makes the appropriation."

Colonel Baehr Elected to S.C.A.A. Board

WINTHROP W. Aldrich, President of the State Charities Aid Association, has announced that Col. George Baehr, M.D., of New York City, was elected a member of the Board of Managers of the Association at its monthly meeting, held at the Bankers Club.

Colonel Baehr, who is a leader in scientific medicine and research, is Chief Medical Officer, Office of Civilian Defense, Washington, D.C., and a member of the Public Health Council of the State of New York.

He is a member of the Executive Committee of the Academy of Medicine and also served as chairman of its Committee on Public Health Relations before accepting the Washington appointment. For some time he has been head of the Medical Board of Mt. Sinai Hospital. He is a member of Mayor LaGuardia's Committee on Health Insurance and Medical Service in New York City and has served as Chairman of the Technical Advisory Committee of the New York City Commissioner of Health. He is a member of many medical, scientific, and public health bodies.

Colonel Baehr was graduated from the College of Physicians and Surgeons, Columbia University, in 1908. In 1912 and 1913 he did postgraduate work at the universities of Freiburg and Vienna.

His leadership in medicine and public health has been exercised not only in civilian life but in two wars. In World War I he was with the American

Officers elected at the November meeting will be announced in a later issue.*

Clinton County

The annual meeting of the Medical Society of the County of Clinton was held at the Hotel Cumberland on Monday, November 15.

A meeting of the Comitia Minora was called for 5:30 P.M., and a general business meeting of the society for 6:00 P.M. Dinner was served at 6:30.

The speaker of the evening was Dr. Joseph S. Lawrence, Executive Officer of the Medical Society of the State of New York.

Members who desired to serve on the attending Staff of the Clinton County Home were requested to indicate their wishes to the secretary before the annual meeting.—T. A. ROGERS, M.D., *Secretary*

Erie County

A stated meeting of the county society was held on October 26 in the Hotel Statler in Buffalo, at which Dr. Joseph S. Lawrence, Executive Officer of the Medical Society of the State of New York spoke on "The Wagner-Murray-Dingell Bill *S. 1161.*"

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A talk on the "Relation Between the Physician and the Compensation Insurance Carrier" was given by Roger Humphrey at a meeting of the Baccelli Medical Club in Buffalo on October 19. Dr. George C. Barone and Dr. Charles C. Panzarella were the hosts.

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Dr. H. H. Bauckus, of Buffalo, was one of the interrogators on the program entitled "Are Local Health and Medical Services a Federal Problem?" which was given over the Blue Network program (WKIP) on October 14.

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Dr. Frank L. Meleney was the speaker at the meeting of the Buffalo Academy of Medicine on November 10. The title of his address was "Limitations of Sulfonamide Therapy in Surgical Conditions; the Indications for Penicillin in Surgical Infections."

Dr. Meleney is professor of clinical surgery at the College of Physicians and Surgeons and visiting surgeon at Presbyterian Hospital, New York City.

Discussion was given by Drs. Nelson G. Russell, Herbert A. Smith, and Ernest Witebsky.

Fulton County

Dr. Emanuel Eckstein, ear, nose, and throat specialist and surgeon, has opened an office for practice in Gloversville, having leased the offices of Dr. A. J. D'Errico, who recently entered Army service.

Dr. Eckstein was graduated at Breslau, Germany, and came to the United States in April, 1941. Previous to coming to this country, he practiced for twenty-five years as ear, nose, and throat specialist in Upper Silesia and for fifteen years conducted his own private hospital.

Since coming to this country, Dr. Eckstein has been connected as resident surgeon in the ear, nose, and throat service of City Hospital on Welfare Island in New York.*

Genesee County

Dr. Clyde Randall, of Buffalo, spoke on "Common Gynecological Conditions, Their Diagnosis and Office Treatment" at a meeting of the Genesee County Medical Society held at the Batavia Club on October 27.

On November 3, at the Hotel Richmond, the medical society joined with the Genesee County Bar Association for their annual meeting together. The annual meeting of the medical society, when officers for the coming year will be selected, will be held in the first week in December.*

Herkimer County

Dr. Joseph S. Lawrence, of Albany, Executive Officer of the State Medical Society, spoke at a meeting of the Herkimer County Medical Society on November 4 at the Mohawk Valley Country Club.

Dr. Lawrence explained the Murray-Wagner bill now before Congress. Dr. B. G. Shults, president, had said the meeting would be open to representatives of interested organizations.*

Jefferson County

Dr. Samuel Kant, once a lieutenant in the Bolivian Army, and a former resident of Vienna, Austria, has opened an office in Clayville for the practice of general medicine.

He is a graduate of the Medical School of University of Vienna and spent five years in Kaiser Franz Josef Hospital specializing in gynecology, pediatrics, and internal medicine. He left Vienna four months after Hitler invaded Austria, and went to England, where he served a year as resident physician at the Hospital for Tropical Diseases.

Dr. Kant was commissioned a lieutenant in the Bolivian Army, in which he spent one year, and later served as district doctor for the Bolivian government. He came to the United States in 1941. For almost two years he was resident physician at the Guthrie and Man Hospitals in Huntington and Man, West Virginia, respectively.*

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The Board of Education in Watertown has voted to divide the work of a medical assistant to Dr. Lewis W. Heizer, school doctor, among four local physicians for the duration, as proposed by the Jefferson County Medical Society. They are: Drs. Norman L. Hawkins, Leonard M. Vincent, Guido J. Gianfranceschi, and L. R. Smith. There has been no aide to Dr. Heizer since Dr. Lawrence F. Withington entered the service.*

Kings County

A stated meeting of the county society and the Academy of Medicine of Brooklyn was held on November 16.

The following scientific program was given: "Plastic Surgery for the Correction of Common Deformities," by G. Frank Sammis, M.D., F.A.C.S., plastic surgeon, St. John's Hospital, Brooklyn, and Queens General Hospital; and "Surgical Treatment of Deafness," by Robert T. Moorhead, M.D., F.A.C.S., chief otolaryngologist, Brooklyn, Long Island College and Beth Moses Hospitals.

Col. Samuel Kopetzky, (MC), Medical Director of Selective Service, was the third speaker of the evening.

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Durham, N.C.; and "Twenty-Five Years of Health Work in the Soviet Union," by Henry E. Sigerist, *M.D.*, director of the Institute of the History of Medicine, Johns Hopkins University, Baltimore, Md., and editor of the *Review*.

A profile of Dr. Nikolai Burdenko, clinical notes taken from Soviet journals, book reviews, and society notes complete the issue. Among the book reviews is a discussion of the fluoride which makes dentistry painless.

Dr. Hoffman Wins Cancer Award

THE Clement Cleveland Medal, given annually for outstanding service in the cause of cancer control, was presented in absentia on November 2 to Dr. Frederick L. Hoffman, of San Diego, California, whose ideas led to the foundation thirty years ago of the American Society for the Control of Cancer.

Dr. Hoffman is an internationally known statistician and a former vice-president of the Prudential Life Insurance Company of Newark, New Jersey.

The presentation was made at the annual dinner of the New York City Cancer Committee at the Advertising Club of New York by Mrs. Robert G. Mead, daughter of Dr. Cleveland, in whose memory the award was established. Dr. Howard C. Taylor, attending surgeon at Roosevelt Hospital, accepted for Dr. Hoffman. Dr. Clarence C. Little, managing director of the society, reviewed the organization's history. Dr. John C. A. Gerster, chairman of the New York Committee, presided.

The dinner marked the opening of "cancer week" in New York City, during which funds were collected to carry on the committee's educational work on the importance of the early recognition and treatment of cancer.

$1,087,000,000 Earned by Physicians in 1941

PHYSICIANS with private practices earned $1,087,000,000 in 1941, a gross income unmatched by either independent lawyers or dentists.

An article in the Commerce Department's *Survey of Current Business* made this report.

It said preliminary data indicate that the average earnings of physicians have risen substantially during the present year.

The article, "Incomes in Selected Professions," said the 1941 gross earnings for physicians practicing independently average 60.6 per cent above the 1933 depression low. Their net incomes aggregated $640,000,000 73.9 per cent above 1933 and another record high.

On the basis of questionnaires to a representative sample of physicians, the article reported that the average 1942 gross income was $8,524 but that one-fourth of the physicians reporting had incomes below $2,000. More than one in eight reported earnings above $10,000 and 22.1 per cent earned $7,000 or more.

The report revealed that incomes of physicians practicing in New York City were below those in any other city of more than 500,000 population and in the country as a whole.

County News

Allegany County

The regular annual meeting of the county medical society was held October 28, in Friendship, New York, conjointly with the Allegany County Registered Nurses' Association. The guests present were Dr. David E. Bigwood, Assistant District State Health Officer; Dr. Lena Benjamin, a retired medical missionary from Nellore, India; and Dr. Ralph W. Bohn, from the staff of the Gowanda State Homeopathic Hospital, who spoke on "Newer Trends in Psychiatric Treatment."

Broome County

The November meeting of the county society was held Tuesday evening, November 9, in the auditorium of Binghamton City Hospital. The scientific program consisted of a lecture, "Tuberculosis Case Findings," by Dr. Ezra Bridge, superintendent of Iola Sanatorium, Monroe County, member of the Medical Research Committee of the National Tuberculosis Association, and chairman of the Committee on X-Ray Apparatus and Technic of the American Trudeau Society.

Dr. C. J. Marshall, chairman of the economics committee, presented for the approval of the society resolutions regarding the Emergency Maternity and Infant Care Program.

The following members of the society have received discharges from the Army: Dr. D. O. Chamberlain, Dr. J. F. Cusick, Dr. R. C. Goudey, Dr. Anthony LaRusso, Dr. I. J. Rosefsky, and Dr. Arthur Solomon.

Chautauqua County

The Jamestown Medical Society held a dinner meeting at the Hotel Jamestown Friday evening, October 22, with Dr. Hilding A. Nelson presiding. A symposium on "Ulcers of the Stomach" was presented, with the following taking part: Dr. James F. Valone, Dr. Frederick R. Weedon, Dr. Thomas H. Shanahan, Dr. Frank P. Goodwin, and Dr. George W. Cottis. A motion picture on the partial removal of a stomach was shown.*

Chemung County

On October 27 members of the Chemung County Medical Society heard Dr. John A. Conway, of Hornell, district health officer, explain the newly enacted law which provides maternity aid for wives of service men.

Dr. Conway, at a meeting in the Arnot-Ogden Memorial Hospital, said that wives of men under the rank of sergeant are eligible for the financial aid. The bill provides that the government will pay all hospital costs, delivery charges, and doctor bills for those eligible.

The society endorsed a resolution passed recently by the Albany County group which commends the act. However, the local society recommended that the allocation be made in cash instead of by direct payment to the doctors and hospital.

* Asterisk indicates that item is from a local newspaper.

At the regular meeting of the Council of the American Laryngological, Rhinological, and Otological Society, held on June 1 in New York City, the following officers were elected for 1943–1944: president, Dr. H. Marshall Taylor, of Jacksonville, Florida; and vice-presidents, Dr. Westley M. Hunt, New York City, Eastern Section; Dr. William C. Warren, Jr., Atlanta, Southern Section; Dr. Fred W. Dixon, Cleveland, Middle Section; and Dr. Simon Jesberg, Los Angeles, Western Section. Dr. Theodore E. Walsh was appointed assistant editor to serve during the absence of Dr. Lyman Richards, editor, who is on duty with the Navy.

Among the candidates who were elected to active fellowship in the Society is Dr. Maxwell D. Ryan, of New York City. Dr. William L. Culbert, also of New York City, was elected to emeritus fellowship.

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The ninth meeting of the Nursing and Social Science Service Section, under the auspices of the Tuberculosis Sanatorium Conference of Metropolitan New York, was held in the Einhorn Auditorium at Lenox Hill Hospital, 131 East 76th Street, New York City, on Monday, November 29, at 8:15 P.M.

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Long opposed to publication of advertisements showing racial or religious discrimination, the *Journal* of the Medical Society of the County of New York has tightened its policy to exclude any ad which mentions a doctor's race, creed, or color, Dr. Alfred M. Hellman, chairman of the publications committee, said.

"If you want to rent an office, you can't mention that you're Christian, Jew, Mohammedan, or anything else," Dr. Hellman said. "Although we formerly refused ads which discriminated against any race or religion, we did allow a doctor to describe himself in his own ad. Now all he can say is he's a doctor and wants an office.

The *Journal*'s action was in conformity with a resolution passed by the County Medical Society last spring, censuring the American Medical Assn. for allowing discriminatory advertisements to appear in its *Journal*.*

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The Baruch Committee on Physical Medicine, organized to explore the possibilities of service in the field of physiotherapy, has voted to volunteer is assistance to the government in the rehabilitation of wounded service men.

A motion that the committee "should approach the Surgeons General of the Army and Navy and the administrator of the Veterans' Administration to ascertain in what respect this committee could be of assistance in the development of war-time physical rehabilitation" was adopted yesterday afternoon at the first meeting of the committee, held in its newly opened headquarters at 597 Madison Avenue, the same building in which Mr. Baruch has his New York office.

The committee was organized by Bernard M. Baruch on October 13, with a grant of $25,000, to recommend to Mr. Baruch a plan for the establishment of an institution for the study and teaching of physiotherapy, a project which Mr. Baruch said he hoped to support "in a very large way."

Dr. Ray Lyman Wilbur, chancellor of Stanford University and former president of the American Medical Association, who is chairman of the committee, declined to say at this early date what direction the committee's study would take, but an indication of the subjects to be considered was given in the division yesterday of the committee into a number of subcommittees. The subcommittees and their chairmen are as follows:

Occupational therapy, Dr. Kristian G. Hansson, medical director of the Physical Therapy School at the Hospital for Special Surgery, 321 East Forty-second Street; infantile paralysis, Dr. Wilbur; basic research, Dr. W. T. Sangar, president of the Medical College of Virginia; clinical research, Dr. John Coulter, medical director of the Physical Therapy School, Northwestern University Medical School; teaching, Dr. Frank Krusen, medical director of the Mayo Clinic department and School of Physical Therapy, Rochester, Minnesota; rehabilitation, Capt. Charles F. Behrens, head of the x-ray department at the Naval Medical Center, Bethesda, Maryland; publicity, Dr. Wilbur; prevention, Dr. Hansson; hydrology (water and its uses), Dr. Carl R. Comstock, of Saratoga Springs, New York.

Lt. Col. Benjamin A. Strickland, Jr., of the Army Medical Corps, is the eighth member of the committee.*

Oneida County

Functions of the cerebellum were discussed by Capt. J. R. Brown, member of the Mayo Clinic unit in Rhoads General Hospital, at a meeting of the Utica Academy of Medicine on October 21. A dinner preceded the meeting.

Captain Brown correlated the experimental work that has been done in various diseases of the cerebellum. The function of that part of the brain, Captain Brown said, is to coordinate muscles and to maintain bodily equilibrium. The doctor used slides to illustrate his talk.

Dr. Willliam W. Wright, superintendent of Marcy State Hospital, was unable to attend but sent in a case history on the same subject, which was read by Dr. Ross Helmer, who presided. Captain Brown's paper was discussed by Maj. William Lipscomb, neurological surgeon at Rhoads. Dr. O. J. McKendree also participated in the discussion.

A paper on surgical treatment of growths of the nose was given by Dr. H. D. Parkhurst. Dr. F. M. Miller, who has performed a series of operations in removing the growths with the resultant return of the nose to its normal shape, discussed the operative technic and presented slides of recent cases.*

Onondaga County

Medical members of the armed forces stationed near Syracuse were invited to attend a joint meeting of the Onondaga County Medical Society with the Syracuse Academy of Medicine on October 19 at 7:30 P.M. at the Onondaga Sanatorium. Dinner preceded the meeting.

Speakers were Dr. Herman O. Mosenthal, clinical professor of medicine, Columbia University, who discussed "Functional Pathology, Potassium Thiocyanate Therapy, Kidney and Blood Pressure," and Dr. J. William Hinton, associate clinical professor of surgery, Columbia University, who spoke on "The Thoraco-Lumbar Sympathectomy in Essential Hypertension."*

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The title of the Friday Afternoon Lecture for November 19 was "The Direct Practical Application of the Fundamentals of Laboratory Medicine as Applied to General Practice, with Particular Reference to Chemotherapy," by Dr. Theodore J. Curphy, of Garden City, New York.

Livingston County

Dr. Stanley Lincoln, physician in charge of the Tuberculosis Hospital at Mt. Morris, spoke to the Rotary Club of Dansville on October 12 on the county's plan to reduce tuberculosis by x-ray examinations of industrial workers. The chest x-ray program began in Livingston County on October 18.

Monroe County

"The Doctor in Court" was the subject of a discussion by representatives of the legal and medical professions at the Rochester Academy of Medicine on October 19. The program was under the auspices of the Medical Society of the County of Monroe.

Representing the Rochester Bar Association were Eugene VanVoorhis, Judge H. Douglass Van Duser, T. Carl Nixon, George J. Skivington, and Paul Folger.

The medical panel was composed of Dr. Albert C. Snell, Dr. Floyd S. Winslow, Dr. Ralph R. Fitch, Dr. Leo F. Simpson, and Dr. John L. Van DeMark.*

* * *

Dr. George H. Whipple, pathologist and dean of the University of Rochester School of Medicine, received an honorary degree of Doctor of Science at Western Reserve University Medical School's centennial celebration in Cleveland on October 27.

In one of the principal addresses at the observance, the Rochester Nobel Prize winner reported on studies made at University of Rochester Medical School on blood plasma proteins in connection with wounds, operative shock, and malnutrition.

Dr. Whipple is one of seven scientists who two years ago reported on experiments indicating that casein could be used as a means of building up blood plasma of persons weakened by wounds, operative shock, or malnutrition. It was his early experiments leading to a cure of pernicious anemia which brought him the Nobel Prize.*

Nassau County

Classes for mothers and expectant mothers, sponsored by the Village Welfare Society of Fort Washington, in cooperation with the Nassau County Department of Health and the Nassau County Medical Society, are held at the Village Welfare House.

The classes aim to teach the why's of baby care and prenatal care—why diapers are carefully laundered—why the mother-to-be must eat certain foods —why baby clothes are carefully made—and other important subjects—and to build up the mother's confidence in herself to the point that she is happier in her new responsibility,

Attendance at classes may begin at any time. They are held on Monday at 2:00 P.M., at the Village Welfare House. Plans are under way for special classes for interested fathers.*

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More than half the high schools in Nassau County cooperated with the Nassau County Medical Society in its cancer prevention campaign by giving classroom instruction on the problem, the society announced in its monthly publication, *Nassau Medical News.**

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The county society resumed its monthly meetings in November, after having suspended them for several months because of the gasoline shortage.*

New York County

The monthly meeting of the Medical Society of the County of New York was held Monday, October 25, at 8:15 P.M. at the New York Academy of Medicine.

The program featured two addresses. "The Practical Aspects of the Diagnosis and Treatment of Adrenal Insufficiency" was the title of an address by Dr. George W. Thorn, Hersey Professor of the Theory and Practice of Physic, Harvard University Medical School, and "The Recognition and Treatment of Para-Thyroid Disease," was the subject of a paper read by Dr. David P. Barr, professor of medicine, Cornell University, Medical College.

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For the first time in the history of the American Academy of Ophthalmology and Otolaryngology, at the meeting held in Chicago on October 10, a plastic group won the First Award for scientific exhibits. The winning exhibit, in rhinoplasty, was presented by Drs. Samuel Fomon, Morris S. Bender, Alfred Schattner, and Romeo Luongo, of Philadelphia, under the auspices of the American Otolaryngological Society for the Advancement of Plastic and Reconstructive Surgery.

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Dr. Cassius H. Watson, for twenty-eight years medical director of the American Telephone and Telegraph Company, retired on October 1. He has been succeeded by Dr. Melville H. Manson, formerly medical director of the Bell Telephone Laboratories and since 1942 medical director of the New York Telephone Company.

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Hunter College of the City of New York is offering a training course for parents of deaf children, teachers, social workers, nurses, and physicians. Classes are conducted at the Lexington School for the Deaf, 68th Street and Lexington Avenue, by the staff of the Lexington School in cooperation with the Hunter College Evening and Extension Division.

The instructors are Miss Mildred A. Groht, principal of the Academic Department, and Miss Mary C. New, supervisory teacher. The sessions, which began on November 1, will be fifteen in number. They meet on Mondays, from 1:50 to 2:40 P.M. Ten sessions will emphasize the problems of deaf children below the age of 6, and five will emphasize the problems of deaf children over the age of 6.

The course is designed, by means of lectures and demonstrations with pupils, to provide parents and others interested with simple technics that help to meet such problems as eating, sleeping, and other habits of young deaf children, and to teach simple methods of encouraging the use and development of speech, lip-reading, and language.

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Schenectady County

The regular monthly meeting of the county society was held on, November 2 in the Ellis Hospital library in Schenectady.

The scientific subject for the evening was "The Role of the Medical Management of Diseases of the Gallbladder," and the speaker was Dr. Carl H. Greene, professor of Medicine at the New York Post-Graduate Medical School.

Schoharie County

The annual meeting of the Schoharie County Medical Association was conducted on October 12 at the Cobleskill High School. During the business session all officers of the association were re-elected.

Dr. R. G. S. Dougall, of Cobleskill, is president of the association; Dr. Le R. Becker, of Cobleskill, vice-president and acting treasurer during the absence of Dr. Duncan Best of Middleburg, who is in military service; and Dr. Donald Lyon, of Middleburg, secretary. Dr. David W. Beard, of Cobleskill, is delegate to the State Medical Society.

Guest speaker at the meeting was Dr. Peckham, of Cooperstown. His topic was "Obstetrical Analgesia." Following this address a movie entitled "Comparative Physiology of Labor" was shown.

Seneca County

The following is a list of officers elected for 1944 by the Seneca County Medical Society: president, Dr. Walter M. Pamphilon, Willard State Hospital, Willard; vice-president, Dr. Bruno Riemer, Romulus; censors: Dr. Robert F. Gibbs, Seneca Falls; Dr. Edwin P. McWayne, Fayette; and Dr. Edward M. Wellbery, Waterloo; delegate to State Society Meeting, Dr. Roy E. Wallace, Seneca Falls; alternate, Dr. Frederick W. Lester, Seneca Falls; delegate to the Seventh District Branch Meeting, Dr. Robert F. Gibbs, Seneca Falls; alternate, Dr. Arthur F. Baldwin, Waterloo.

Warren County

The annual meeting of the Warren County Medical Society was held Thursday, October 28, at which time the following officers for the ensuing year were elected: president, Dr. Burke Diefendorf, Glens Falls; vice-president, Dr. P. H. Huntington, Warrensburg; secretary-treasurer, Dr. Lester Huested, Glens Falls; delegate to the State Society (two years), Dr. Morris Maslon, Glens Falls, members of the Board of Censors: Dr. J. B. Shields, Glens Falls; Dr. L. J. Butler, Glens Falls; Dr. John M. Griffin, Glens Falls.

Resolution of respect to the memory of Dr. David Hall, recently deceased member of the Warren County Medical Society, was adopted.—MORRIS MASLON, M.D., *Secretary*

Washington County

The Washington County Medical Society held its annual meeting on October 12, 1943, at 4:00 P.M. It was held at the Court House in Hudson Falls.

The scientific program consisted of three lectures. At the afternoon session the presidential address, "Therapeutic Uses of Plasma" was presented by Dr. George M. Casey of Hudson Falls. Following dinner at the Carleton Hotel, Dr. John D. Carroll, senior ophthalmologist and otologist at Troy and St. Joseph's hospitals, delivered a lecture entitled "Vertigo—Its Significance in Diagnosis." Dr. Joseph S. Lawrence, Executive Officer of the state society, spoke on "Activities of the State Medical Society in Albany."

Election of officers was held at this meeting. The new president is Dr. Roy E. Borrowman of Fort Edward, the vice-president is Dr. Zenas V. D. Orton of Salem, Dr. Denver M. Vickers of Cambridge is secretary, and Dr. Charles A. Prescott of Hudson Falls is treasurer,

On the board of censors are Dr. C. H. Holmes of Cambridge, Dr. W. S. Bennett of Granville, and Dr. J. L. Byrnes of Hudson Falls; Dr. D. M. Vickers is the delegate to the State Society.

The committees for 1944 are the Committee on Legislation, of which Dr. W. A. Leonard is chairman; Committee on Public Relations, headed by Dr. M. A. Rogers; Committee on Farm Security, consisting of Dr. B. C. Tillotson, Dr. I. V. Decker, and Dr. D. F. Macarthur; and the War Participation Committee, on which Dr. E. V. Farrell, Dr. Roy E. Borrowman, and Dr. S. J. Pashley are serving.

Westchester County

The 146th annual meeting of the county society was held Tuesday, November 16, at 8:30 P.M., in the New York Hospital, Westchester Division.

A special address entitled "The Army Travels Along the State Road," was given by Reginald Fitz, M.D., of Boston.

The annual reports of officers and committees were read and the annual election of officers was held. The names of the officers will be published in a later issue.

* * *

Dr. Nicholas J. Colao, of Peekskill, was recently elected president of the Board of Education of the City of Peekskill.

* * *

Dr. Walter Schoendorff, of Yonkers, announces receipt of his final papers as a citizen of the United States, effective September 1, 1943.

Wyoming County

The following physicians have been elected to offices in the Wyoming County Medical Society: Dr. G. Stanley Baker, Castile, president; Dr. George W. Nairn, Warsaw, secretary; Dr. Luis L. Klostermyer, Warsaw, Committee on Postgraduate Education; Dr. L. Hayden Humphrey, Silver Springs, Committee on Public Health.

* * *

Dr. Charles Stinson has begun the practice of medicine in Perry. He is maintaining offices in the quarters occupied by the late Dr. J. W. Gallagher, whose equipment he has purchased.*

* * *

The regular fall meeting of the county society was held at the Community Hospital in Warsaw on Wednesday, October 13. Special recognition for fifty years of practice was given Dr. L. E. Stage of Bliss. Other doctors in the county having this record are Dr. Mary Greene, of Castile, and Dr. W. J. French, of Pike.

Miss Doris Barber, superintendent of nurses,

The following quotation is from a story which appeared in the Syracuse *Post Standard* on October 13:

A direct appeal by Mary Vecchio, 16, of 209 Nichols Ave., 1943 Eastwood high school graduate, to President Roosevelt, is enabling her father, Louis Vecchio, Eastwood shoemaker-inventor, to complete a diathermic medical device [illegible] is and numerous other [illegible] lay.

[illegible] "a chemical apparatus for washing the poisons from monoxide gas and holder of patents on a number of electrical devices, has been engaged continuously in experiments on what he calls a "Therma Sino Science" machine, for nearly a year and a half. The name is subject to change, he added.

In addition to the many barriers that are tossed in the way of [illegible] what seemed to be [illegible] Priorities jumped [illegible] continued until a point was reached where a certain type of short wave radio tube was needed. He found that these tubes, used almost exclusively in the manufacturing of apparatus for the medical profession, were under tight control of the war department and he was unable to obtain release of as few as two of them, his pleas falling on deaf ears.

The situation seemed hopeless until his daughter, Mary, declared that she would place the case before the president. It was the bold persistence of youth.

She figured, he said, that nothing could be lost by trying, and try she did. The response was quick and thrilling. The president replied that her father would be able to continue with his experiments. The tubes arrived from the manufacturer postpaid and the bill of lading stated that they were complimentary at the request of President Roosevelt.

This brought the device to the attention of scientists and medical men in the war department. They became interested at once and have been keeping in touch with progress, with the inventor's daughter making regular reports to the department and the president, while Vecchio keeps working night and day in his "laboratory" which is a little room back of his "shoe hospital" at 2707 James St.

There is still another piece [illegible] to finally perfect the machi[illegible] granted and it is just a case of [illegible] said that he hopes to have th[illegible] war department within the next six weeks.

Vecchio is giving much credit to the final development of his device to Howard E. Young, Solvay process electrical engineer and expert radio technician, who, he said, has been working with him for many weeks, often far into the night.

Young, he said, came into [illegible] and [illegible] fu[illegible] the [illegible] he[illegible] ng's [illegible] s[illegible] the [illegible] said he will make known when it is finally completed and ready for war department tests.

Manufacture of his fuminator, started just before Pearl Harbor, has been halted for civilian use until after the war.

The "Sino Therma Science" device embodies many improvements in the application of diathermy treatment, Vecchio said. One advantage is that it is light and portable, weighing only 18½ pounds.

Ontario County

Dr. J. Wendell Howard, of East Bloomfield, was elected president of the county society at the annual business meeting held in conjunction with the Society's visit to Sampson Naval Training Station on October 14. Dr. Howard is secretary of the Canandaigua Medical Society and a member of F. F. Thompson Hospital medical staff.

Dr. Leon A. Stetson, of Canandaigua, was named president-elect for 1944, and Dr. D. A. Eiseline, of Shortsville, was elected secretary and treasurer for his forty-seventh consecutive year.

With physicians from Monroe, Seneca, Yates, Wayne, and Steuben counties, the Ontario County group visited the Naval Training Station in the afternoon, more than 300 physicians responding to the invitation to visit the Station. They heard scientific papers by members of the Station's medical staff and made a tour of the Station and hospital.

In the Ontario County unit's business session Dr. H. J. Knickerbocker, of Geneva, was named delegate to the State Society with Dr. M. D. Dickenson, also of Geneva, as alternate. The Board of Censors was renamed, as follows: Dr. S. A. Munford, Clifton Springs, chairman; Dr. A. McL. Stewart, Naples; and Dr. B. C. Hurlbutt, Rushville. Dr. John W. Karr continues as editor of the quarterly bulletins of the county society. Dr. Howard began his new duties on October 18.*

Orange County

Dr. Irving Weiner is the physician for the Newburgh Bears for the 1943 season. Dr. Weiner aided the Newburgh Recreations in 1942, but this will be the first time that he will have had complete charge of all medical cases for the club.*

Queens County

At the regular stated meeting of the Medical Society of the County of Queens, which was held at the society's building, on Tuesday evening, October 26, Dr. Morris Fishbein, editor of *The Journal of the American Medical Association*, spoke on "Planning for Postwar Medical Services." Dr. John P. Peters, professor of medicine of the Yale University School of Medicine, had for his subject "Should Medicine Be Merely Derivative?"

Dinner was served at the Forest Hills Inn preceding the meeting.

* * *

The November 5 meeting of the county society featured an address by Dr. Max A. Goldzieher, chief endocrinologist at Stuyvesant Polyclinic Hospital and endocrinologist at Brooklyn Women's Hospital. His subject was "The Use of Hormones as Pharmaka."

Saratoga County

The county society held its annual meeting at the Wishing Well on October 14.

Dr. Emerson Kelly addressed the society on "The History of Medicine."

* * *

A county medical plan under which all fees in county welfare cases will be set at a uniform level has been approved by the Saratoga County Board of Supervisors. Fees paid to doctors, nurses, and hospitals, and ambulance, drug fees, and all attendant fees are included in the plan, which also permits surgeons to charge a specified fee in welfare cases for the first time.

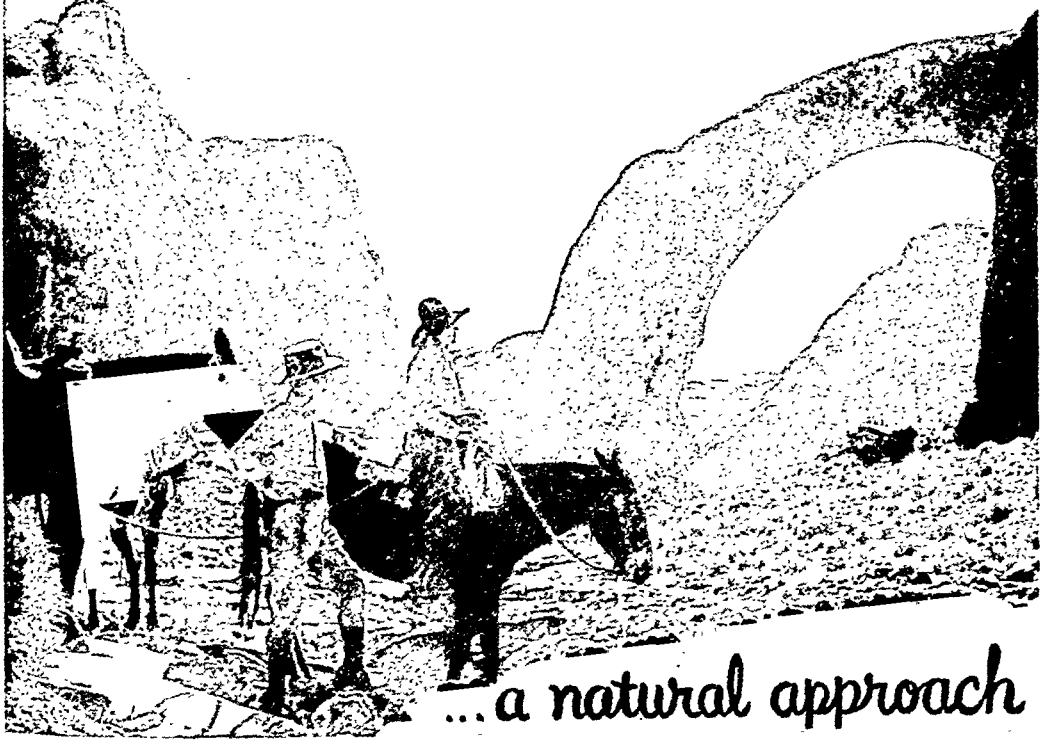
Under discussion for the past year, the plan has the approval of the county medical society. The plan will be administered by a doctor recommended by the society. In tentative operation for the first year, the plan does not provide for a salary for the director. However, if the plan proves successful and is adopted permanently, it is expected that a salary will be provided.

The Board of Supervisors is awaiting the recommendation of the society before naming the director.

A report from the Public Health and Welfare Commission, filed at the meeting, stressed the need for more public health nurses in Saratoga County. At the present, the county employs three full-time nurses and one nurse for tuberculosis cases. The commission recommended that one more nurse be provided, and stipulated that she must be a resident of the county. The commission also recommended that additional nurses be obtained after the war.*

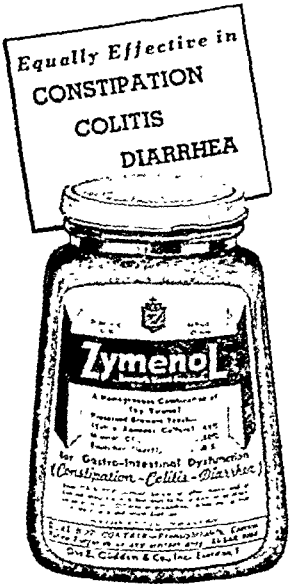
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gave a history of the School of Nursing which was started in 1939 and has enrolled 83 students.

The program of the school includes clinical experience in general medical nursing, surgical nursing, obstetric nursing, operating-room technic, and preparation of therapeutic diets is given in the home school. In addition, students have three affiliations: (1) pediatrics—Children's Hospital of Buffalo, three months; (2) psychiatry—Brooklyn State Hospital, three months, (3) tuberculosis (acute communicable)—Mt. Morris Tuberculosis Hospital, two months.*

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Frank J. Blodgett	86	Vermont	October 30	Manhattan
Jesse G. M. Bullowa	64	P. & S., N.Y.	November 9	Manhattan
Theodore Burr	82	N.Y. Univ.	November 2	Jamaica
Edward J. Callahan	51	Albany	November 8	Saratoga Springs
William M. Chew	39	Virginia	September 4	Manhattan
Morgan J. Cramer	71	Pennsylvania	November 4	Astoria
William W. Grantier	67	Buffalo	August 8	Buffalo
Bert R. Parsons	71	Ecl. Cincinnati	November 4	Cortland
Simplicius Righi	73	Bologna	October 16	Manhattan
Florence I. Staunton	74	W.M.C. Pa.	October 16	Peekskill

BROOKLYN SYNDROME

"Brooklyn syndrome" is the name jokingly applied by Navy physicians to a sort of chip-on-the-shoulder defensiveness of men from crowded districts of some of our larger cities as well as from some rural regions in western Pennsylvania.

Although a perfectly harmless social pattern, this characteristic truculence may be mistaken in a hurried induction examination for psychopathic personality and may even result in the rejection of men who would make perfectly good soldiers.

This is revealed by three physicians of the Psychiatric Unit, U.S. Naval Training Station in Newport, R.I. (*Journal of Psychology, July*). They are Lt. Comdrs. C. L. Wittson, H. I. Harris, and W. A. Hunt.

A re-examination of men classified as 4-F for neuropsychiatric reasons is urged by these officers as well worth the time and effort involved. The very brief examination which rushed wartime conditions make necessary causes mistakes in both directions—inducting the unfit and rejecting those fit for military service, they believe.

The Navy is now receiving most of their recruits from the Army induction centers. But the Navy gives its own examination to the men before assigning them to duty. Of the first 1,622 inductees received at the Newport Training Station, 5.8 per cent were discharged as unfit for duty, the Navy officers report. This proportion was checked by the next 1,452. Of these, 5.65 per cent were discharged. The discharged men included men who had been in the hospital for mental disease, epileptics, feeble-minded, and illiterates.

But the Navy does not discharge a man on the basis of this re-examination. First they send them to a hospital for observation. The observation period shows that the Navy doctors can make mistakes in a brief examination, too. About 35 out of each hundred men admitted to wards for study are finally sent out to duty.

The excitement of the examination may cause a dull normal man to appear feeble-minded, the report warns.

"For many of them, joining the Navy is the most important occasion of their lives to date, and this examination may constitute a situation of greater psychological strain than anything to be later encountered in service," the report explains.

To the physician, the examination is an old story. He examines large numbers of men day after day. It is easy for him to forget or overlook what the examination means to the recruit.

Fatigue may make a man seem feeble-minded or even mentally ill. If the examination comes at the end of a hard day followed by a sleepless night, that may be enough to make a man act queer. And the boy who is very homesick, or the country boy in the city for the first time, may present a misleading picture to the psychiatrist.

Faking the symptoms of mental illness or mental deficiency is, however, very rare, the officers state. Physicians are much more likely to be fooled in the opposite direction. Men will lie about having been previously treated for mental illness, and they will try to hide important facts that might lead to rejection. And yet the physician must depend, in many cases, on what the recruit says. It is very difficult to detect cases of sleep-walking, for example, unless the man speaks truthfully about it. An epileptic is hard to detect unless he should conveniently throw a fit during the examination.—*Science News Letter*

NO FLAME

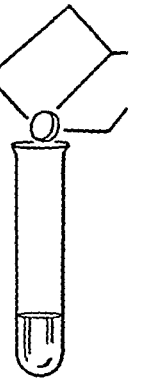
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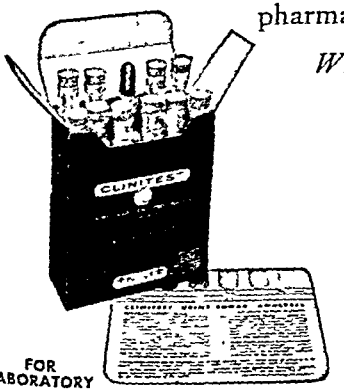
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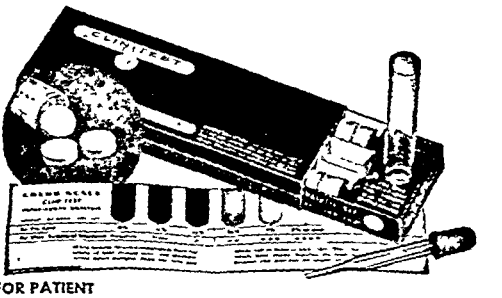
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Mental Hygiene News

Annual Meeting of National Committee for Mental Hygiene

THE National Committee for Mental Hygiene held its thirty-fourth annual meeting at the Hotel Roosevelt, New York City, on Thursday, November 11. The Committee's war work was the theme of the meeting.

Dr. Adolf Meyer, president of the Committee, presided, and the speakers included Dr. Nolan D. C. Lewis, professor of psychiatry, Columbia University, and director of the New York State Psychiatric Institute and Hospital, on "Perspectives on Mental Hygiene Tomorrow"; Harry Pelham Robbins, president of the Board of Visitors of the Central Islip State Hospital, on "Tribute to the Founder, Clifford W. Beers"; and Dr. George S. Stevenson, Medical Director of the National Committee for Mental Hygiene, on "A Year of Progress."

The Committee is a voluntary organization of physicians and laymen promoting interest and action throughout the United States for the prevention and control of mental illness and the conservation of mental health. Its activities are now devoted principally to aiding the war effort.

Protecting Individual and Army, Finding Niche for Every Citizen Should Be Aims of Selective Service, Dr. Plant Declares

PROTECTION of the individual as well as the Army and fitting every citizen into his right niche according to his capabilities should be the aims of Selective Service, Dr. James S. Plant, director of the Essex County Juvenile Clinic, Newark, New Jersey, declared on November 11 in an address on "Today's Responsibilities in Mental Hygiene," at the thirty-fourth annual luncheon of the National Committee for Mental Hygiene at the Hotel Roosevelt in New York City. Dr. Plant deplored the trend toward merely rejecting the unfit for military service instead of helping men to find out what they can do best. He said the work being done by the National Committee in wartime is "magnificent."

"We are busily engaged in giving help to Selective Service, and this must continue," he continued. "From a mental hygiene point of view this involves, of course, the best possible protection to the Army. But it also involves, as I see it, the best possible protection to the individual. This we are in great danger of not giving.

"There has been a very disturbing trend towards helping the Army to reject the unfit rather than towards helping individuals to find out what they can best do. Viewed in terms of the interest during the '30's in identifying the professional worker with the patient, this sudden about-face in which the professional worker identifies himself with the employer seems to me a very questionable sort of procedure.

"There is nothing here against provision for the Army of the best material. But we must see that specialization over the last fifty years has tremendously weakened each individual's feeling of his worth-whileness as an individual—and that in all of the activities of the Selective Service this helplessness of the individual as an individual has been intensified. It's been grand—particularly in the field of social work—to see the eager loyalty with which the social worker has hurried to the help of the Army in combing out the unfit. Perhaps here we are all selling our birth-right for a mess of pottage. Perhaps it is a prime responsibility of today that we turn our faces towards the selection of the right niche for each citizen rather than that we only help to reject him if he does not meet a certain set of specialized demands.

"John Steinbeck has said 'These are glorious months for wives. Never have they been more beautiful, more worth while.' We must recognize that where people live apart from each other they are allowed to build ideal pictures of each other. One sees this in simple fashion in the problem of marriage. No one ever married a real person, but rather what he thought that person to be. Through the first years of marriage there is the problem then of tolerance—of finding that we are living with a real person and of the development of a feeling that that person has a right to be that real person.

"A great many people think of the postwar family problems as being affected by what one would call a 'cooling' of the affectional ties. This is not so much involved as is the problem of tolerance—that one doesn't need to be tolerant of others when he doesn't have to live with them. There is the need at the present time in every assisting group in every camp (and in every assisting group in each community) to get those who are separated from those they love to recognize that this problem of tolerance is one of the great and inevitable ones to follow the war. A good deal of this is a matter of rather cold and objective education. People can see—as the matter is brought to their attention—that there will be far more difficulty in actually living with a man or wife, or child or parent, than is occasioned at the present time when the sharp disruption of the family allows the picture of the absent member to remain endowed with every lovely trait that one would want in it.

"I am as interested as anyone in the more widespread problems of racial and national tolerance, but I doubt that we can do much there until we have met the issues in each person and in each family. It is for this reason that I think of this matter of education as one of the most pressing of our present responsibilities. Each person can be so satisfactory and so grand—until we have to live with him. He can continue to be this if we understand the extent to which we have been forcing upon him what we would want him to be instead of accepting each for what he is.

"Without going into the intricacies of the whole present international situation it must be evident that we are seeing on a grand scale the emotions of fear and anxiety. Psychiatry has never understood too well these two different emotions. Today we have perhaps in stronger relief than at any other time whole groups who are dominated by fear and other whole groups who are dominated by anxiety. These are days full of pressing present items but I would still think it a major responsibility that we use these months to understand the relationship of

[Continued on page 2332]



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[Continued from page 2330]

these two most devastating of emotions. Obviously, anything that we can learn in this field would be of transcending importance in the whole future development of psychiatry and in fact in the understanding of man's reactions to his social frustrations and problems for many generations to come.

"In war, as in other crises, we experience an orgy of emotional expression. Whether war creates or releases these outbursts we are not too sure, but the psychiatric research of the last generation has given us considerable faith in the latter view. Can we not see the problems of these months within a framework that would certainly predict further wars if the peace is to be on the basis of the bottling up of our aggressive tendencies—of simply trying to pretend that they do not exist?

"It is very much the responsibility of mental hygiene that it point out to American education that there must be knowledge of and training of the emotions as well as of the intelligence. One admits that there may be economic or geographical components to the causes of war—but in the last analysis these all come back to the interpretation which man puts upon them. And we know now that that interpretation is made at the behest of the emotional needs rather than that of the intellectual attainments, of persons. This is no plea for emotional orgies through the early family and school years. It is not a denial that knowledge is power. It is the claim that this power is wielded by the emotions—and that unless in our early training we can help the child to bring to the surface and understand his fear and anxiety, his aggression, loyalty, and independence as we help him to understand words and numbers, we move to other wars regardless of the smoothness of our instruments of peace.

"None of our present responsibilities intrigues one more than that revolving about the question of communication. The major part of communication is carried out now through the use of symbols. These are so necessary to the conveyance of thought and emotion that we would like to forget how crystallized they are—how inflexible. Thus a large part of education in this country concerns itself with the manipulation of symbols—very little with the understanding of the relation of symbols to reality. Imagine the difficulties of the coming months over the word 'sovereignty.' This will be struggled over endlessly—forced into *this* new combination of other symbols, stretched to cover *that* new formula, all because we have no facile way of putting new experiences, new needs and desires into symbols. And all because, for new situations, we feel compelled to use symbols which were crystallized out of entirely different earlier human experiences and situations. Can't we go *today* to the primary grades through the land to press upon them that children must learn the use of symbols in the expression of reality experiences before they turn their attention to the manipulation of those symbols?

"Everyone who knows adolescents has caught their eagerness to have some active part in the stirring events that compass the globe. Yet it is at least my own experience that these older children have never shown a more marked constriction of interests. From a mental hygiene point of view there is a wide difference between going willingly to even the supreme sacrifice because that is what everyone is doing and doing willingly because of a cause in which one feels lost. It is as true today as ever that one finds himself by losing himself. But is this what happens when one seeks an experience which everyone else is having, rather than that he gives himself unreservedly to a loyalty? For those who are working in the field of morale as well as for those whose interest is the future mental health of our people there must come poignantly this question as to whether there will develop a loyalty, a cause, a goal to which each one without reservation could surrender himself.

"There are, finally, those deeper implications to the mental hygiene problems of the civilians and soldiers transferred to new environments. There is today's task of meeting loneliness, the sense of strangeness, of insecurity that come out of this dislocation. But back of that is the weakening of the individual, the erosion of his feeling of worth-whileness and of being a person. We are going through a period—often spoken of as 'temporary'—in which paternalistic control over each item of each person's life is growing each day. It is part of mental hygiene's responsibility to see that the dislocations in habits, in occupation, in residence—that all these demand a continuance of precisely that which we fight to defeat.

"Thus we come back to where we started—that perhaps the core problem is that of the integrity and worth-whileness of each individual. And our core responsibility is that we see each of our tasks in that light. In the readjustment that follows the war there will be no single problem greater than that of the reassembling of the individual—analyzed by the special and technical education of our last generations, broken into parts because his vocabulary (mode of communicating) has not been able to keep pace with the rapidly changing conditions of his life, torn up by the roots through the vast migrations of these last few months."

Dr. Lewis Says Citizens Should Demand Opportunities for Mental Health for All

IT IS our duty as citizens to demand that opportunities for attaining and maintaining mental health be made available to all," asserted Dr. Nolan D. C. Lewis, Professor of Psychiatry at Columbia University and Director of the New York State Psychiatric Institute and Hospital, at the thirty-fourth annual luncheon of the National Committee for Mental Hygiene at the Hotel Roosevelt on November 11.

"The tribulations and controversies which lie ahead of those living in 1943 may be much more formidable than those that have beset the world in the past years," he said. "Those who are now young may have to pay heavily for the results of a great mass of social, political and economic blundering, bickering, and refined lying. To meet the problems they will need as much mental equilibrium as can be acquired."

Dr. Lewis' topic was "Perspectives on Mental Hygiene of Tomorrow." Among his recommendations for adequate opportunities for mental health were adopting procedures successful in early recognition and control of tuberculosis; distributing information to the public about mental health and emphasizing prevention; guiding individuals in the choice of life work; early recognition and treatment of emotional conflicts and behavior disorders of children; teaching mental hygiene during the formal education period of the child and adult; better

[Continued on page 2334]

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[Continued from page 2332]

teaching of psychiatry in medical schools; an increase in the number of practicing psychiatrists; and larger funds for research and for dissemination of knowledge already gained, with state and federal governments assuming larger responsibility for research and education.

"We have now been engaged in the study of mental disorders long enough to make it apparent to everyone that the prevention and treatment of these disorders are not simple problems," said the speaker. "The possible causes are legion and the possible combinations of these in individual instances are very numerous.

"During the past fifty years various schools of thought have made valuable contributions to the study of personality development and disorders. There has been the natural tendency for most of these groups to stress their own particular philosophy and methods of work, and to pay little, if any, attention to other concepts, but one can rest assured that there is room for several types of workers as progress in this field will include the synthesis of many disciplines and methods in the study of the complex of human behavior.

"It is essential for man to have the ability to manipulate and adapt the environment as well as to make changes in himself, as he must live in society. It is equally essential that society be so constructed as to afford adequate opportunities for individuals to exist. All activities of the individual and of social processes are, in the last analysis, of our cerebral life, and too many of them are pathological in nature.

"Society surely needs some method of selecting its leaders that will prevent ambitious moral morons and other unqualified individuals from acquiring positions of influence and power.

"Of course, there are diseases of society as there are disorders of bodily organs and of individuals, but they are not in the same categories. Even psychiatrists have fallen into the error of attempting to explain the disordered trends in society in the same terms applied to the psychopathological behavior of individuals. This is in contrast to all biological principles of integration. The organization known as 'society' is a different structure from one of its units known as the 'individual' or 'person.' We make rather thin analogies in applying those concepts and terms, that have developed in the study of pathology of the person to social pathology as such. For example, to speak of 'mob delirium,' 'national paranoia,' and 'race schizophrenia' is probably no more expressive of the facts than to speak of 'arthritis of the emotions,' 'obesity of thought,' or 'nephritis of the judgment.' In other words, the characteristics of a unit are not those of a total integration pattern, and societies are huge living organisms with unique characteristics of their own.

"Just as the psychiatrist dealing with patients must have some knowledge of the nervous system and other organs of the body in order to understand the behavior capacities of the whole individual, so the social pathologist should have a knowledge of the psychological and psychopathological traits and principles at work in individuals as units in order to comprehend the whole organism called 'society.'

"Science is the most progressive factor in culture, and our best hope of bettering conditions on this earth. Research, intelligence, and long term thinking are needed now as never before. We must learn something more about the original nature of man and of individuals. Science provides a pattern of thought which if people were taught to follow would eliminate much of the shortsightedness, ignorance, and questionable values which are now a part of the structure of society.

"The human race has not yet begun to realize its vast possibilities and we must support our monks of science who represent the immortal spirit which refuses to perish.

"Although a great deal has been learned about mental disorders during the past fifty years, psychiatry is young as a science and still has to be developed as a basic science to take its rightful place beside the disciplines of physiology, pathology, and biochemistry.

"The early and consistent training of a person, if he is to be considered broadly educated, should be planned in a way to give him an understanding of himself and of the world about him, and particularly of his relationship to that world. With this as a foundation and source of strength individual advancement and security will be possible as the person will possess the ability to appreciate values, will be prepared to meet without panic and without prejudice various problems as they arise, and thus to live with some satisfaction in the present world. Moreover, it will enable him to grow with and aid in improving a growing world and changing civilization.

"We must remember that every individual possesses many capacities that remain undeveloped because of lack of suitable stimuli to call them forth

"It was intelligence and not brute force that enabled primitive man to overcome the great beasts of prey and other forces of nature. With man's steadily increasing control over the forces of nature there has been no similar gain in controlling or intelligently directing human nature. In addition to widespread interpersonal and international disturbances there are affecting the person abnormal fears, boredom, worry, indecision, the sense of inferiority and oversensitivity which are greater 'public enemies' than the gangsters and racketeers that are being so eagerly hunted by our police organizations.

"There are some signs indicating that the coming generation is going to suffer from these 'public enemies' more extensively than we do at present. Even now our failure in the field of education is one of the main reasons, perhaps the only important one, why those in need of help run to the quack, the charlatan, and are eager to sample the wares offered by the latest cult."

Dr. Lewis offered the following recommendations to the psychiatrist:

"Intensive study with treatment of individual patients is the first duty of the psychiatrist.

"We might learn a good deal and accomplish a lot by studying and adopting some of the procedures of the campaigns which have been so successful in the early recognition and control of tuberculosis.

"What knowledge we have on the origin and nature of mental conditions and on the modes of attack and prevention should be disseminated as widely as possible. A great responsibility rests on practicing psychiatrists for opening these channels of prevention.

"We want to bring into action as many young minds as possible; fresh minds filled with curiosity and not yet stunted or frozen by the authority of their teachers and who have not yet learned by experience and reverses that new things cannot be accomplished.

[Continued on page 2336]

28 WORDS

tell the story...

Clinical tests* showed that when smokers changed to PHILIP MORRIS Cigarettes, every case of irritation of the nose and throat due to smoking cleared completely or definitely improved.

*Laryngoscope, Feb. 1935, Vol. XLV, No. 2—149-154.

TO THE PHYSICIAN WHO SMOKES A PIPE: We suggest an unusually fine new blend — COUNTRY DOCTOR PIPE MIXTURE. Made by the same process as used in the manufacture of Philip Morris Cigarettes.

[Continued from page 2334]

"Some means must be devised for guiding the individual in the selection of the life work for which he is best adapted, and thus prevent susceptible subjects from entering life situations that would eventually prove disastrous to their psychological balance.

"The early recognition and therapy of emotional conflicts and behavior disorders in children by pediatricians alert to the possibilities should accomplish a great deal towards averting emotional disturbances later in life and thus make a major contribution to mental health. Both the child and the grownup crave and need security, affection, understanding, the opportunity for achievement and a recognition of their talents and abilities.

"The propagation of knowledge of the kind that can be digested mentally by the public, the teaching of mental hygiene all through the formal education period of the child and adult, the better teaching of psychiatry in the medical schools, and the production of a larger number of psychiatrists are most urgent. It is said that we have a ratio of one psychiatrist to every 45,000 people with the majority of these serving in hospitals for mental disorders and not distributed among the populace.

"Basic financial support in the form of grants and subsidies for the dissemination of knowledge already gained and for the advancement of research must be arranged in a systematic way if anything is to be done on a large scale. State and federal governments have definite obligations to fulfill in this respect. So far no government today has seriously undertaken to organize an adequate program of education and research aimed at the reduction of psychological ills among its people.

"In a democracy such as we are trying to preserve one hears the emphasis placed on the enjoyment of liberties, rights and happiness, all of which sentiment is very fine, but there must be also duties, labors, and obligations to carry out in the development and support of our society, that massive organism which is so vulnerable to distortion and disease.

"Mental hygiene will progress and become effective if we strive to enlarge our fund of research data; insist upon accuracy in evaluating the facts gained by specialization and apply the techniques derived from these various sources of information. Mental hygiene will thrive as a part of general cultural growth.

"Healthy movements are already on the way in many states and communities where the objectives are better care and treatment of mental patients through the improvement of hospital facilities, the utilization of the capacities of the mentally defective and the epileptic; more adequately supervised child guidance clinics, and a frontal attack on the complicated problem of pathological alcoholism. This type of intensive effort should lead to a considerable advancement in the control and prevention of mental disorder, but only if it receives the concerted support of the medical profession and the nonmedical public."

ELECTRICAL SKIN TEST FOR NERVE INJURIES

A simple, accurate, and practical method of mapping the areas affected by nerve injuries is described in The *Journal of the American Medical Association* for July 3 by Curt P. Richter, Ph.D., and David T. Katz, M.S., of Baltimore.

The method, which has been described before, employs the resistance of the skin to electrical currents applied by means of a small electrode. By means of this test the authors mapped the affected areas of skin in 10 patients with ulnar lesions (involvement of one of the nerves of the forearm and hand), of recent and long standing, which were produced by accidental cuts, intentional stabs, compression from fractures, or by bomb and shell fragments.

One of the chief advantages of this method is that its successful use does not depend on the cooperation of the patient. In cases of suspected malingering (pretended injury) the electrical skin-resistance method supplies a more reliable test than the patient's own report. In cases of severe fractures or other injuries which may involve the nerves, the test should make it possible to find out at once the exact place and extent of the nerve involvement.

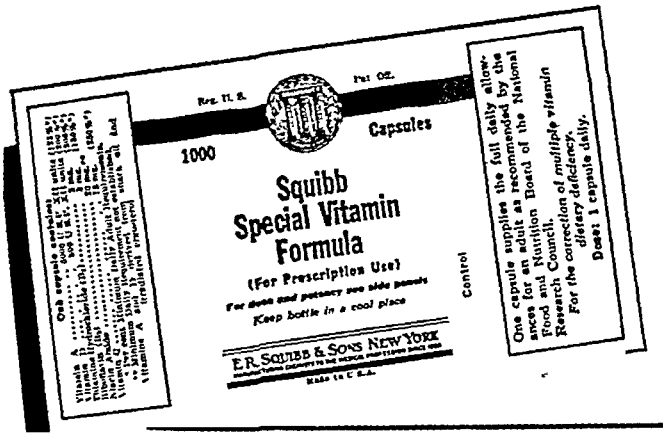
This method should help to determine the success of nerve sutures (sewing nerve ends together) and to follow the progress of repair. It should also be possible to determine which procedures speed up nerve regeneration and which retard it by the use of this test.

PROFESSION OR TRADE?

The medical profession deserves the grateful recognition and regard of all other callings in modern life. It has always insisted that the practice of medicine is a profession and not a trade.

Trade is occupation for livelihood; profession is occupation for the service of the world. Trade is occupation for joy of the result; profession is occupation for joy in the process. Trade is occupation where anybody may enter; profession is occupation where only those who are prepared may enter. Trade makes one the rival of every other trader; profession makes one the cooperator with all his colleagues.—*President Faunce, of Brown University, in an address to the Rhode Island Medical Society, 1905*

2 IMPORTANT NEW AIDS TO PRACTICAL VITAMIN THERAPY



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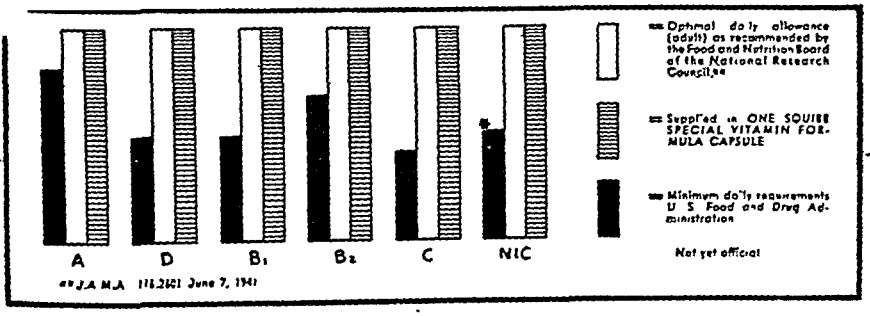
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Spies[1] in reporting the nutritional rehabilitation of one hundred selected industrial workers states, ". . . we have used a basic formula composed of a mixture of the water-soluble vitamins in treating the clinical syndromes of beriberi, pellagra, riboflavin deficiency and scurvy. This formula contains 10 mg. of thiamine, 50 mg. of niacin amide, 5 mg. of riboflavin and 75 mg. of ascorbic acid. When the symptoms of one deficiency predominate, more of the vitamin specific for the predominating deficiency is added." This is the same formula also used successfully by Jolliffe and Smith[2]—the same formula you get when you specify SQUIBB BASIC FORMULA VITAMIN TABLETS.

(1) Spies, T. D.: *J. A. M. A.* 122:911, July 31, 1943.
(2) Jolliffe, N., and Smith, James J.: *M. Clin. North America* 27:501, March 1943.

For further information write the Professional Service Department, E. R. Squibb & Sons, 745 Fifth Avenue, New York 22, N. Y.

Health News

Handling of Pathogenic Cultures and Experimental Use of Animals Restricted

ARTICLE XXIII of the Public Health Law of New York State requires the registration of all places where cultures of pathogenic micro-organisms or viruses, other than vaccine virus, are handled, and specifies conditions under which such cultures may be sold or distributed.

Chapter IV of the New York State Sanitary Code contains regulations pertaining to the use of living bacteria, other pathogenic micro-organisms or viruses (exclusive of vaccine virus) in the inoculation of human beings, the distribution of such cultures, and the use, sale, or manufacture of bacterial rat poisons.

Persons violating these requirements of the Law and Sanitary Code are subject to severe penalties. Such legislation was enacted as a means for safeguarding the public health and to prevent the careless handling of cultures and their use for criminal purposes. It is particularly important at this time that anyone contemplating use of pathogenic micro-organisms or viruses other than vaccine virus should familiarize himself with the conditions under which such work can be done.

Should any proposed experimentation involve the use of animals, it should be borne in mind that Section 185 of Chapter 88 of the Penal Law has been interpreted to restrict the use of animals for such purposes to work done under the auspices of ". . . . the faculty of some regularly incorporated medical college or university of this state."

Copies of the items in the Law and the regulations in the Sanitary Code will be furnished upon request to the Division of Laboratories and Research, New York State Department of Health, Albany.—*Health News*

State Committee of Cancer Society Meets

The nineteenth annual meeting of the New York State Committee of the American Society for the Control of Cancer, Inc., was held at the Strong Memorial-Municipal Hospital, Rochester, Tuesday, October 5, 1943, under the chairmanship of Dr. Louis C. Kress.

At the meeting of the general membership the reports of the treasurer, the executive secretary, and the Commander of the Women's Field Army, were read.

The executive secretary reported the five- and ten-year survivals of cancer patients from the Rochester hospitals. There are now 179 patients on the ten-year survival list. Seventy-one new five-year survivals were reported, bringing the total number of five-year survivals up to 673.

The scientific program was conducted by the director of the Tumor Clinic, Dr. Andrew H. Dowdy, associate professor of radiology, University of Rochester School of Medicine and Dentistry. Dr. Karl M. Wilson, professor of obstetrics and gynecology in the University of Rochester School of Medicine and Dentistry, reported 5 cases of chorionepithelioma seen in the Gynecological Service since the opening of the hospital in 1926, 2 of which have reached the five-year survival point. Dr. Clyde A. Heatly, associate professor of otorhinolaryngology and bronchoscopy, and Dr. Andrew H. Dowdy presented 8 patients who had been treated with laryngo-fissure, laryngectomy, and irradiation for carcinoma of the larynx.

James M. Flynn, M.D., Rochester; Judson B. Gilbert, M.D., Schenectady; Mary F. Laird, R.N., Rochester; John F. Lynch, M.D., Elmira; Herbert A. Smith, M.D., Buffalo; and Frederick S. Wetherell, M.D., Syracuse, were elected directors to serve three years, and Arthur F. Holding, M.D., Albany, was elected a director to fill the unexpired term of Marian Craig Potter, M.D.

At the meeting of the board of directors Mrs. L. H. Jacobs was elected secretary, Mr. Stephen E. Godden was elected treasurer, and Dr. John M. Swan was elected executive secretary, each to serve one year.

James M. Flynn, M.D., William I. Dean, M.D., and Miss Mary F. Laird, R.N., were elected members of the executive committee.

State Health Officials Study Tropical Diseases

Dr. Robert F. Korns, epidemiologist on the staff of the Division of Communicable Diseases of the New York State Department of Health, has been granted a leave of absence for special study and clinical observation of the tropical diseases.

As a representative of the Department, Doctor Korns will take a two months' course in tropical medicine at the Army Medical School in Washington, D.C. He will then travel to Honduras and Guatemala, Central America, as a member of the faculty of Albany Medical College under a program sponsored by the Association of American Medical Colleges, to observe various types of tropical diseases.

* * *

Dr. Paul A. Lembcke, district health officer of the area comprising Livingston, Monroe, and Wayne Counties, has returned from a trip to Costa Rica and Guatemala, where he was sent as a member of the staff of the University of Rochester Medical School to obtain clinical experience in the tropical diseases.

Dr. Albert H. Harris, associate bacteriologist at the Division of Laboratories and Research, also attended the course in tropical and military medicine given at the Army Medical School in Washington.

Instruction of physicians and public health officials in this country in the recognition and treatment of tropical diseases is believed to be advisable in anticipation of the importation of these diseases through the medium of military personnel returning from the tropical theaters of war.—*Health News*

Dr. McGuinness Decries Physical Unfitness

Largely because of carelessness or self-indulgence, only 52 per cent of us are capable of hard work, Dr. Madge C. L. McGuinness, director of the Department of Physical Therapy at Lenox Hill and Misericordia Hospitals, New York City, told the annual convention of the American Congress of Physical Therapy in Chicago on September 9.

"The other 48 per cent, because of lack of exercise, machines, malnutrition, fatigue, strain, accidents,

[Continued on page 2340]

Multi-BARRELED THERAPY

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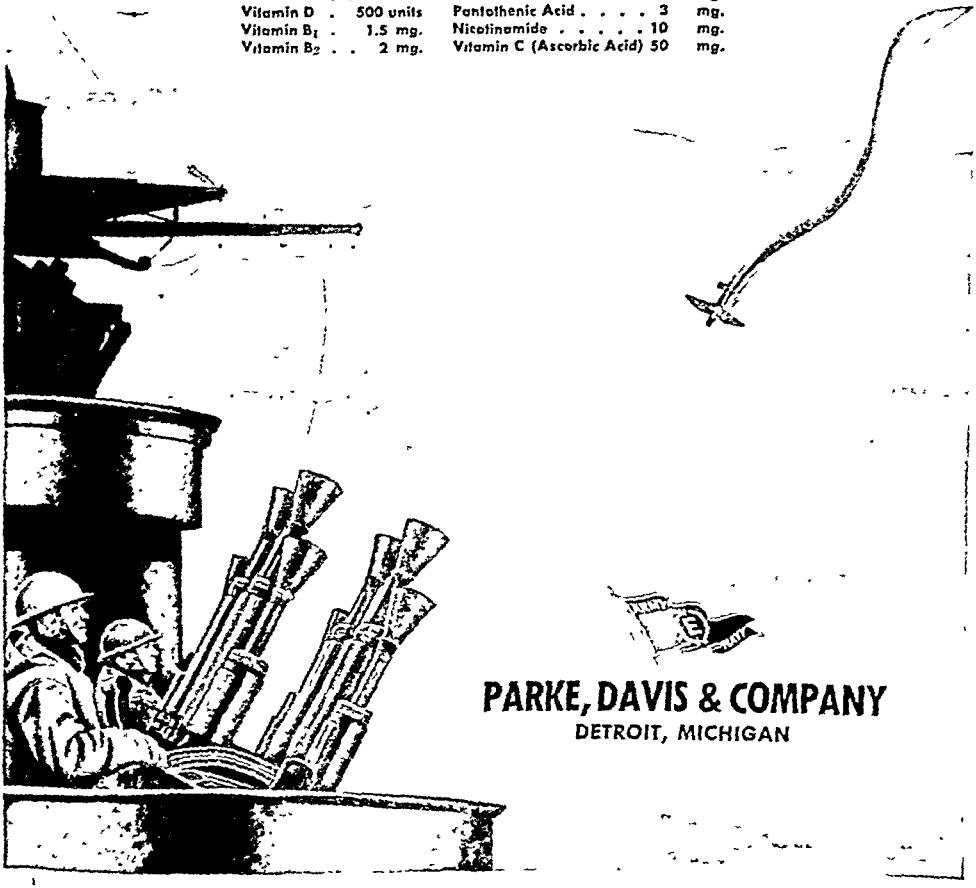
ABDEC* Kapseals* offer physicians a means to provide adequate vitamin supplementation for patients whose diets have become nutritionally incorrect—even in extreme cases.

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Vitamin A	5000 units	Vitamin B_6	0.25 mg.
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Vitamin B_1	1.5 mg.	Nicotinamide	10 mg.
Vitamin B_2	2 mg.	Vitamin C (Ascorbic Acid)	50 mg.



PARKE, DAVIS & COMPANY
DETROIT, MICHIGAN

[Continued from page 2338]

self-drugging, drink, and tobacco, stumble along as best we may," she said.

She deplored the habit of driving children to school when the distance was short enough to be walked, and she advocated outdoor games and gymnastics, particularly for girls.

Dr. McGuinness said she believed we might be able to build up national physical fitness at a greatly lessened cost in our crime bill if we could direct children in the paths of physical and mental education, give them good home backgrounds, good schools with good lighting, seats, and ventilation, and release them from strain, worry, and fatigue.

In an attack on what she termed this country's too-complacent attitude toward accidents and disease, she pointed out that there were 10,000,000 crippled or otherwise handicapped persons among us and that 4,000,000 of them had permanent physical disabilities. She ascribed the high incidence of accident and disease partly to the fact that many persons are not doing the kind of work for which they are fitted.

"In too many cases we are round pegs in square holes," she said, "a state that leads to lowered resistance and invites disease. The three R's most important for us to learn are rest, relaxation, and recreation."

She made a plea for greater effort in rehabilitating handicapped workers, with State aid if necessary, and fitting them to specific types of work suited to their abilities. This latter measure applies to unhandicapped as well as handicapped workers, for Dr. McGuinness said she believed that unsuitability to the job is a cause of absenteeism and that absenteeism is nothing more than the fact that most workers "can't take it."

Queens Group Starts Health Service

The Queensboro Tuberculosis and Health Association has started a library health packet service to help libraries fill their readers' many requests for books on health and disease. Packets of books and pamphlets will be sent to the Queens Borough Public Library and its forty-five branches, to the Queens College Library, and to nurses' libraries at Triboro, Queens General, Flushing, and Mary Immaculate hospitals.

Miss Charlotte E. Murray, circulation librarian at the Queens Borough Public Library, recently reported to the association a rapidly increasing public consciousness of health and disease, which was reflected in requests for health books and in formation in libraries. She added: "The tremendous increase in requests for health material seems to be a trend brought about in part by the war, with its emphasis on physical fitness for soldiers and civilians."

Notes from the New York Tuberculosis and Health Association

In a new publication, *Guide to Health Services Available to the Residents of the Washington Heights and Riverside Health Districts of the City of New York*, released by the New York Tuberculosis and Health Association, are listed for the first time the health, hospital, and clinic services located in or serving the 600,000 residents of the Washington Heights and Riverside Health Districts.

The *Guide* has been prepared by the Washington Heights-Riverside District Health Committee in cooperation with the Riverside Civic Council in order to make full information regarding health resources available to the residents of these districts. It is intended for the use of those people in the community who can most readily make the information available to others.

Included in the *Guide* are lists of the services provided in the Washington Heights and Riverside Health Districts by the New York City Department of Health; the public and voluntary hospitals and special clinic services available; child and maternal health services; services for care of the handicapped; nursing services; ambulance services, and information and educational services. A careful description is given of the conditions under which these services are available to citizens and noncitizens and to people of low income as well as to those without resources. Agencies in and out of the districts are included in the directory if they serve people residing in the Washington Heights-Riverside area.

Dr. Ernest L. Stebbins, Commissioner of Health, in the Foreword to the *Guide* writes: "The Department of Health welcomes this guide on the part of the Washington Heights-Riverside District Health Committee and the Riverside Civic Council as one designed to aid the Department in its efforts to bring to all the people health education for the prevention of illness, and immediate assistance in the prevention of illness or in obtaining prompt medical care in time of need. This 'guide to health services' will, I am sure, prove to be a valuable aid to the residents of the districts in helping them, newcomers and old-timers alike, to meet their health needs." Health Commissioner Stebbins points out that: "Those who are able to do so will, of course, consult their private physicians and dentists."

A limited number of free copies of the *Guide* are available at the offices of the Washington Heights-Riverside District Health Committee, 600 West 168th Street. This committee is sponsored and supported by the New York Tuberculosis and Health Association and is a district committee of Neighborhood Health Development, Inc. The Riverside Civic Council, which cooperated in preparing the *Guide*, is the regional office of the Welfare Council of New York.

* * *

Dr. J. Burns Amberson, president of the New York Tuberculosis and Health Association, announces that the Association has expanded its rehabilitation service for the guidance of recovered tuberculosis patients by appointing personnel to carry forward the program, which has as one of its objectives the salvaging of potential manpower among the tuberculous for war production.

The program, according to Dr. Amberson, also includes guidance and counsel to the expatient in order that he may find a job consistent with his ability to work, and the promotional aspect of rehabilitation. The objectives of the latter are to educate medical, lay, and employer groups with respect to the employment possibilities of former tuberculosis patients, the establishment of educational facilities for patients still in hospitals, and guidance to hospital personnel in planning or expanding such educational facilities.

Bernard S. Coleman, secretary of the Association's Tuberculosis Committee, is directing the program. He will be assisted by Miss Irma C. Minges, as rehabilitation secretary, and Mrs. Ethel Coopersmith, who will serve as rehabilitation assistant.

[Continued on page 2342]

SAFETY UNDER FOOT

No figures are available on the number of injuries due to improper shoes, partly because many of the injuries sustained from falls due to this cause are never treated by physicians and many that are receive little publicity.

Few doctors, if any, have never treated wrenched and sprained ankles, torn ligaments and fractures that have partly if not entirely been caused by badly constructed or ill-fitted shoes. As in all safety work, prevention is preferred in eliminating such hazards.

One step to prevention is the prescription of more suitable footwear and proper fitting. Pediforme service may be the logical prescription in most cases.

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THE OLD—messy, inconvenient liquid formula fell far short of providing accurate dosage of Potassium Iodide. Droppers differed; drops varied with size of dropper tip, the angle at which it was held, and the specific gravity or viscosity of the solution. Compare this guesswork with...

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1 GRAM POTASSIUM IODIDE, U.S.P
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Enteric Coated Tablets
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on prescription only

THE NEW—accurate, controllable and less obnoxious administration of Enkide tablets when Iodide is indicated, assures less distress for patients and less possibility of skipping doses. The enteric coating minimizes gastric distress and eliminates taste. Tablet form makes the dose easier and more convenient to take.

Literature and samples on request.

BREWER & COMPANY, INC. *Worcester Massachusetts*
Pharmaceutical Chemists Since 1852

[Continued from page 2340]

Miss Minges was formerly with the National Tuberculosis Association, where she had wide experience in this work. Mrs. Coopersmith recently completed an externship in the Psychology Department of the Neurological Institute. Both she and Miss Minges had previous experience in the fields of education and private industry.

• • •

At a meeting yesterday of its Committee on Community Dental Health, the New York Tuberculosis and Health Association released two pamphlets which have been written especially for mothers, giving information for the care of their own and their children's teeth.

The pamphlets will be furnished to mothers and others interested, and to physicians, dentists, nurses, and social workers for their own use and as reading matter in their offices and reception rooms for their patients to study.

The pamphlets were prepared in cooperation with the Subcommittee on Dental Education of the lower West Side District Health Committee of Neighborhood Health Development, Inc., and Mothers' Clubs of organizations in the lower West Side. The booklet, *Sound Teeth—Information for the Expectant Mother*, explains the need for dental care during pregnancy and gives advice on proper care and diet during these months.

Sound Teeth—The Care of the Teeth in Infancy and Childhood, the second pamphlet, describes the development of a child's teeth, gives advice on home care, diet, and exercise, and explains the causes of crooked teeth. The three essentials for dental health listed in this brochure are: a well-balanced diet, regular visits to the dentist, and good home care with proper brushing.

• • •

The *Directory of Tuberculosis Clinics, New York City*, compiled under the direction of Dr. H. McLeod Riggins, chairman of the Tuberculosis Committee of the New York Tuberculosis and Health Association and Medical Director of Triboro Hospital in Queens, is off the press.

The directory provides identifying information on the twenty-six officially designated district clinics and the seventeen nondistrict clinics which serve the five boroughs of New York City. It includes also maps showing the boundaries for the tuberculosis district clinics and lists the branch offices of the Department of Health and the District Health Centers, with identifying information.

Cancer Institute Director Retires

Retirement of Dr. Carl Voegtlin as director of the National Cancer Institute, U.S. Public Health Service, has been announced.

Before taking over as director of the National Cancer Institute, Dr. Voegtlin had been chief of the division of pharmacology in the National Institute of Health. He came to that division of the U.S. Public Health Service in 1913 from Johns Hopkins Medical School, where he had been associate professor of pharmacology.

Born in Switzerland and educated in the universities of Basel, Munich, Geneva, and Frieberg, Dr. Voegtlin has had a distinguished career and has an international reputation for his researches in physiology, pharmacology, and cancer.—*Science News Letter*

Foods that Disagree with Healthy People

The question of digestive disturbances resulting from food is of interest to both the nutritionist and the physician concerned with planning either normal or therapeutic diets. Food prejudices are common; many people have peculiar ideas about what they can or cannot eat—ideas which may or may not rest upon fact.

In 1935 Alvarez published data compiled from interviews with 500 patients of the Mayo Clinic in which he had collected information regarding the foods which disagreed with them. All subjects had come to the clinic for medical advice, hence were not in normal health. A surprisingly long list of foods appeared to cause discomfort in one way or another. However, this may be expected when health is below par.

Hughes [*J. Am. Dietet. Assn.* 12: *314* (1936)] reported the findings on 1,000 healthy adults. Six hundred of the subjects were college women with an average age of 20 years; the second group consisted of 200 men and 200 women from 30 to 65 years of age. All were in "good" or "excellent" health. The type and extent of reactions to a large number of foods—belching, nausea, headache, distention, regurgitation, vomiting, pain, and urticaria —are listed in tabular form for the two age groups. For both groups raw onion proved to be the chief offender; approximately one-quarter of the subjects reacted to this food with four or more symptoms. Radishes and cooked cabbage were second, affecting roughly 16 per cent of the group; beans were third, producing reactions in some 14 per cent; the other foods were listed as distressing less than 10 per cent of the subjects. The younger group, in general, had a somewhat higher reaction percentage. Thirty-nine per cent in this group reported distress from a single food, and in the older age group 44 per cent were upset by only one food. It was interesting that foods which frequently cause allergic reactions such as chocolate, pork, sea food, and milk were near the bottom of the list.

There was a marked difference in response to raw and cooked cabbage. For the younger group the incidence of distress following the eating of cooked cabbage was 14.7 and for the raw cabbage 3.7 per cent. The opposite effect was noticed for raw and cooked onions. Raw onions produced disagreeable reactions in one-fourth of the individuals, but when they were cooked only 3 per cent of the adults and 9 per cent of the college group were affected. The differences must be explainable on a basis of the chemical reactions which occur during cooking. The sulfur compounds in uncooked cabbage are apparently less irritating than the decomposition products formed under the influence of heat. The longer cabbage is cooked the greater the *accumulation of irritating products.* With onions, however, there is a loss of irritating substances upon cooking.

Inasmuch as some individuals stated that the greatest discomfort arose when cabbage was much overcooked, and others that the disturbing symptoms were greater when the cabbage was cooked in a covered kettle, the effect of cooking seemed worthy of consideration. This was the subject of second report by Hughes and Campbell [*J. Am. Dietet. Assn.* 15: *24 (1939)*].

The volatile sulfur compounds are found in plants as glucosides which decompose on boiling. Starting vegetables to cook in cold or tepid water permits plant enzymes to decompose the sulfur

[Continued on page 2346]

Hospitals and Sanitariums

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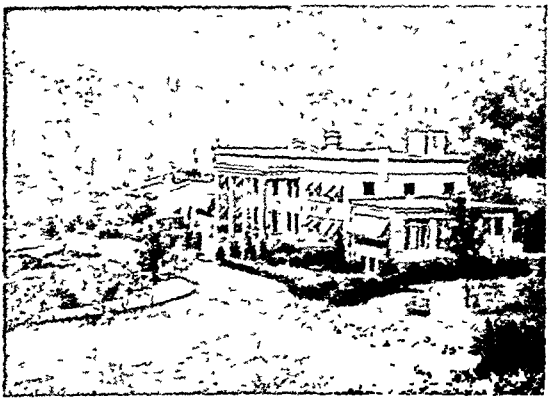
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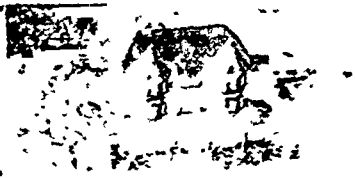
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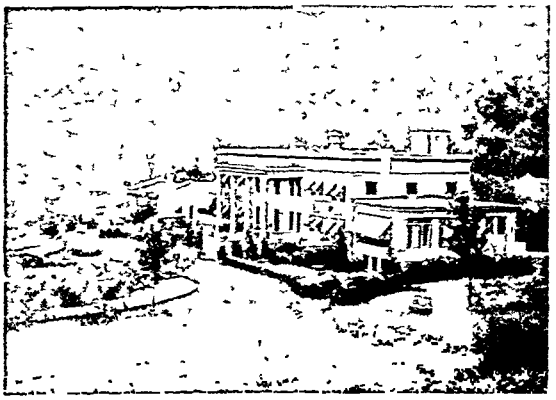
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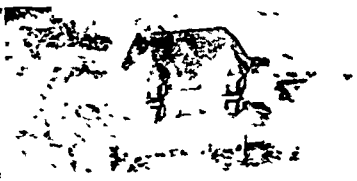
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[Continued from page 2342]

compounds before the enzymes are destroyed by heat. It also prolongs the cooking time. Retention of volatile acids, by covering the kettle, favors the decomposition of the sulfur compounds. The strong flavor of old cabbage, cauliflower, and turnips is thought to be due to the setting free of sulfur compounds by enzymatic action.

In this second experiment 20 healthy subjects (20 to 25 years of age) were chosen. All were known to suffer gastrointestinal disturbances when cabbage was eaten, but none had manifest symptoms of allergy. Cauliflower and cabbage, both raw and cooked, were tested under various conditions. The vegetables cooked for one and a half hours were the worst offenders, next was the raw cauliflower, then the coarsely shredded cabbage, the vegetables cooked forty-five minutes, the finely shredded raw cabbage, and least disturbing of all were the vegetables cooked only until tender.

Recently Hughes and Harris [*J. Am. Dietet. Assn.* 18: *815 (1942)*] studied the influence of the method of preparation on the disturbing effects of onions. Raw onions had been found to be from three to seven times more upsetting than cooked onions. As in the previous study, only subjects known to suffer discomfort upon eating onions were chosen. Ninety-two per cent reported discomfort when the onions were eaten raw, 87 per cent when they were vinegar-soaked, 67 per cent reacted to those cooked in a closed kettle, but only 42 per cent when the kettle was left uncovered even though the cooking time was the same. The best method was found to be that of cooking only until tender. With this method 80 per cent could tolerate the onions without ill effect. Gas and belching were the most generally reported symptoms.

These findings, coupled with studies on the effect of cooking on the nutritive value, indicate the importance of the time factor in food preparation and the need for intelligent choice of method for the preparation of specific foods. In the program of national food economy, as well as that limited to the home, preparation of food assumes a place of greater importance than has been generally conceded to it.—*Nutrition Reviews*

Kenny Institute in Minneapolis

Mayor Marvin L. Kline, of Minneapolis, has announced the creation of the Elizabeth Kenny Institute, Inc., to carry on the work of the Australian nurse in infantile paralysis with the assistance of private benefactors.

The institute will have a board of directors of ten, one of whom, the Mayor said, will be Rosalind Russell, the film star.

Positive Health vs. Tuberculosis

Tuberculosis work has consistently stressed the major importance of positive health, of being more physically fit than the immediate demands of your life seem to require. This we may well call the margin of safety in living. Dr. Edward L. Trudeau was not quite wise in advocating too early exercise for his patients, but he was basically sound in his faith in the health-giving power of the outdoor life.

In its advocacy of personal hygiene, of physical fitness as a worthy objective per se, the tuberculosis control movement has led the field. It has the position of spike horse on the public health team and has trampled a path for the others to follow.—KENDALL EMERSON, M.D.

[Continued on page 2348]

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ELECTRONICS IN FUTURE MEDICINE

Experiments in electronics are suggesting a future world that will one day make our own remarkable era seem archaic in comparison. This miraculous power will not just revolutionize standards of living, but will surely, as well, improve the health of those that populate the world.

When the human machine does break down, doctors will have greater scientific power available for therapeutic purposes. And deservedly so, for the people of the future will owe the miraculous powers of electrons to the x-ray tube of today's medicine, the medium through which Sir J. J. Thomson discovered the nature of electricity and the particles now called "electrons."

Long before our engineers began to think along terms of electronics, Prof. Philip Lenard, Nobel Prize winner, decided to study electrons directly. Taking a vacuum tube, he made a window in it and provided it with a pane of metal foil so thin that the electrons would slip through like water through a sieve. When the current was turned on, a purplish glow appeared outside the window, which meant that electrons were escaping and bombarding the air.

Dr. W. D. Coolidge tried this experiment on a larger scale at the General Electric Laboratories in Schenectady and found that electrons driven through the window with the help of 250,000 volts killed cultures of germs instantly. The electrons also reduced acetylene gas to a solid insoluble yellow dust that burned brightly when ignited. Apples, too, turned brown from a bombardment of electrons and flies were killed by them.

Further experiments by Dr. Arno Brasch, in collaboration with Dr. Wolfgang Huber, a chemist, revealed entirely new possibilities in sterilization, food preservation, and industrial chemistry. These experiments by Dr. Brasch and his medical associates have shown that high-speed electrons will prove to be superior to x-rays and radium in the treatment of tumors and skin diseases. X-rays always provide the danger of damage to surrounding healthy tissues because it cannot be focused exactly. Electrons, however, can be controlled both in direction and depth.

[Continued on page 2349]

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[Continued from page 2346]

Early Diagnosis of Tuberculosis

In spite of the steady improvement in diagnostic technics and facilities during the past twenty years, little substantial progress has been made in finding cases of early tuberculosis. The reasons for this failure are too well known to call for discussion here. Briefly they can be reduced to two facts: (1) early tuberculosis rarely gives rise to symptoms, and (2) apparently well people seldom consult a doctor.—HENRY D. CHADWICK, M.D., and ALTON S. POPE, M.D., in *The Modern Attack on T. B.*

Asphyxiated Tuberculosis Vaccine

The tubercle bacillus survives a temperature as low as that of liquid helium as well as freezing up to two hundred times with liquid nitrogen. In this remarkable resistance to cold the bacillus differs from mammalian cells and tissues, the activities of which are retarded in temperatures near the freezing point but which in general do not survive actual freezing. The prolonged survival of the bacillus when frozen may be explained by dormancy on the part of its enzymes under low temperature.

Tall, Thin Teen-age Youths Have Highest Caries Rate

Tall, thin teen-age youth suffers the highest rate of tooth decay of all groups of persons in America. This fact has been revealed by a two-year research study of more than 1,000 children just reported to the American Dental Association by Dr. Maury Massler, director of the Child Research Clinic of the University of Illinois College of Dentistry.

He discovered that 92 per cent of all rampant caries, the most extreme form of tooth decay, occurred in the tall, thin boys and girls undergoing their most rapid spurt of growth. And the rate of growth and the rate of caries was found to be in direct proportion.

"Of all teeth lost because of caries between the ages of 10 and 35," Dr. Massler declares, "87 per cent were lost because of caries occurring during the teen-age."

Pointing out the need for better dental care to reduce the number of rejections for this cause by the armed forces, Dr. Massler reports that "The young adult selectees first brought up for service in the Army and Navy showed strikingly the ravages of teen-age caries neglect. If these boys had had high school dentistry we would not have had 20 per cent of our rejections on the basis of dental troubles."

Dr. Massler conducted his research in collaboration with the Council of the Child Research Clinic. The youths studied represented unselected groups entering the University of Illinois dental clinic and hospital and unselected groups in the pediatric ward. —*Science News Letter*

Susceptibility to Dental Caries

The causes of dental caries remain obscure. In a recent study of this subject, Gore concludes that the food impaction theory of Miller fails to explain individual susceptibility to caries and the mechanism by which the various types of decalcification of the enamel are produced. The chemical changes in the saliva following changes in diet seem to Gore to offer a more likely explanation. Salivary currents and the physical characteristics of the spontaneously precipitated mucin in the stagnant saliva, Gore says, play an important part in localizing to specific areas of the enamel the acid formed by hydrolysis and fermentation of the carbohydrate radical in mucin.—*J.A.M.A.*

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[Continued from page 2347]

Tests to prove this were made in Germany in 1934, through killing fruit-fly eggs and later with animals in which carcinomas resistant to x-rays were healed by electrons as far as penetration extended.

Electron experiments have also revealed that foods can be sterilized and preserved without heating them. The chief failings of pasteurization, through high temperatures, chemical changes, and destruction of vitamins, may be avoided in the use of electrons. Ultraviolet rays, being equally objectionable in killing bacteria because of their insufficient penetration and intensity, may also be supplanted by the electronic method.

In addition to preserving foods and their flavors, electrons may also compete with ultraviolet light in irradiating ergosterol to form vitamin D. They may make it possible, also, to reduce the toxicity of nicotine in tobacco and to decompose caffein in tea and coffee.

* * *

A BOOK THAT PUTS YOU TO SLEEP

An author who has studied the causes of insomnia for years has now written a book, *"Put Yourself to Sleep,"* that might prove more practical in some cases than the "bicarbonate pill and glass of warm milk."

The publishers give directions for its use as "you get into bed—no matter how wrought up or nervous you may be. You take this small book in your hands. You start to read. And before you know it you are off to sleep."

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—Sunday News

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•Himes, *Medical History of Contraception*

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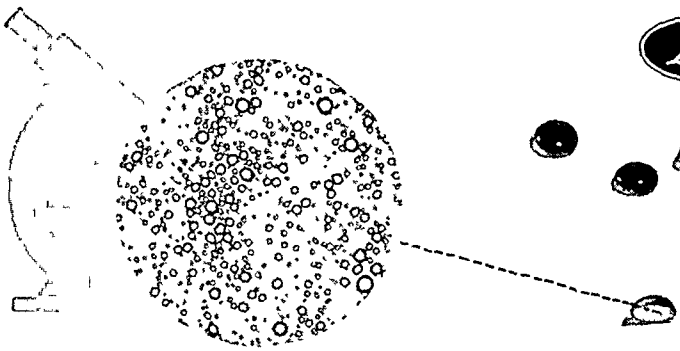
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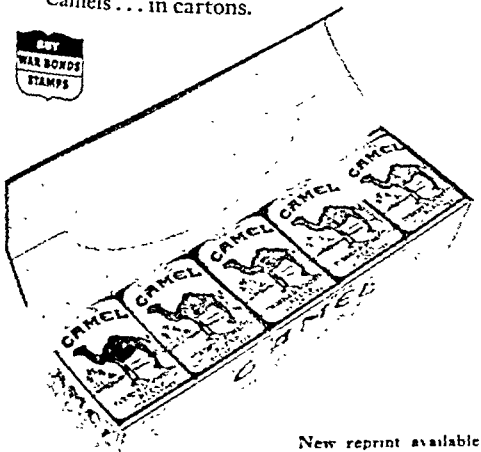
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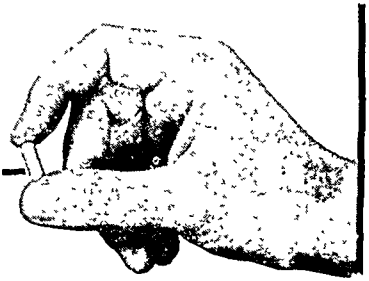
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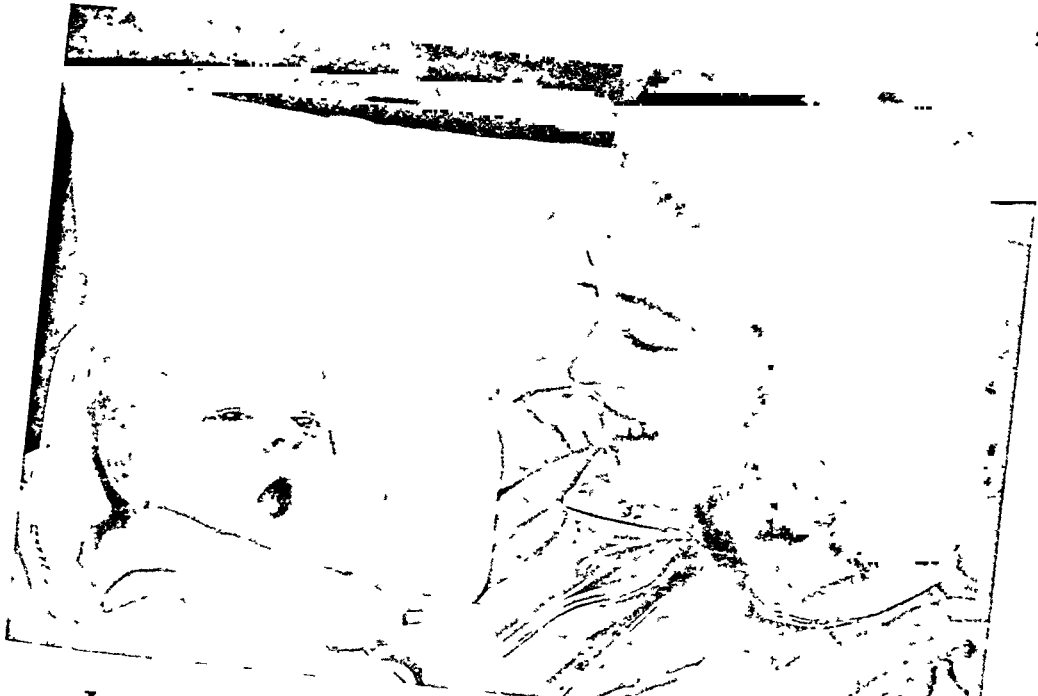


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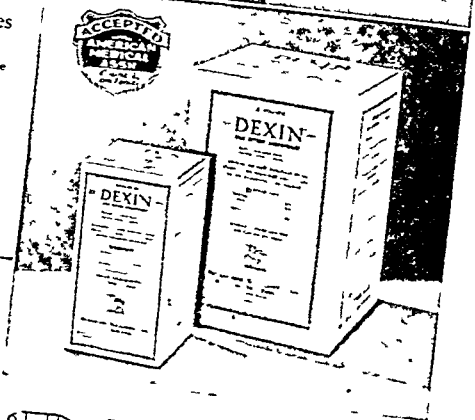
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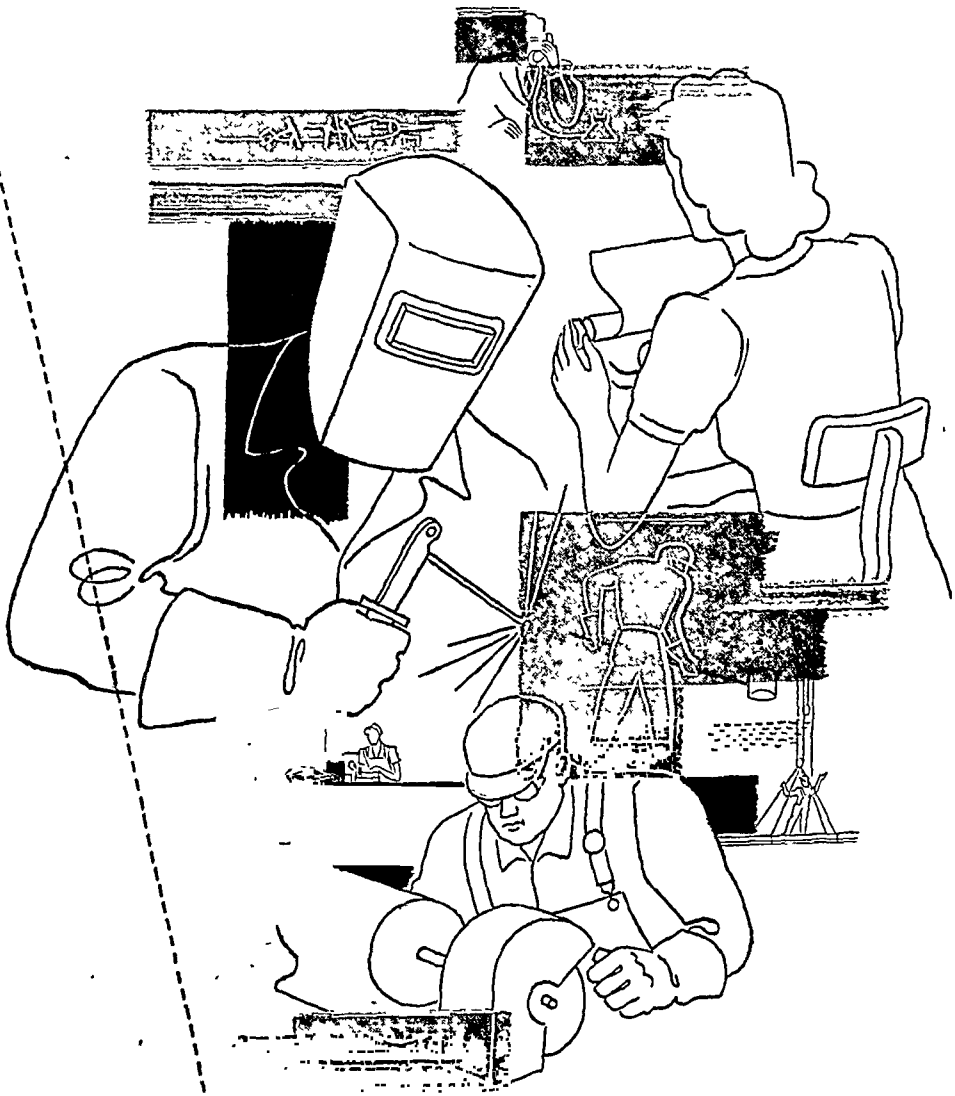
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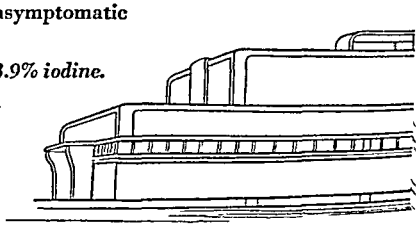
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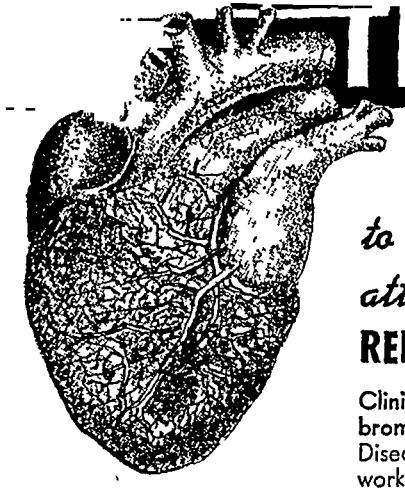
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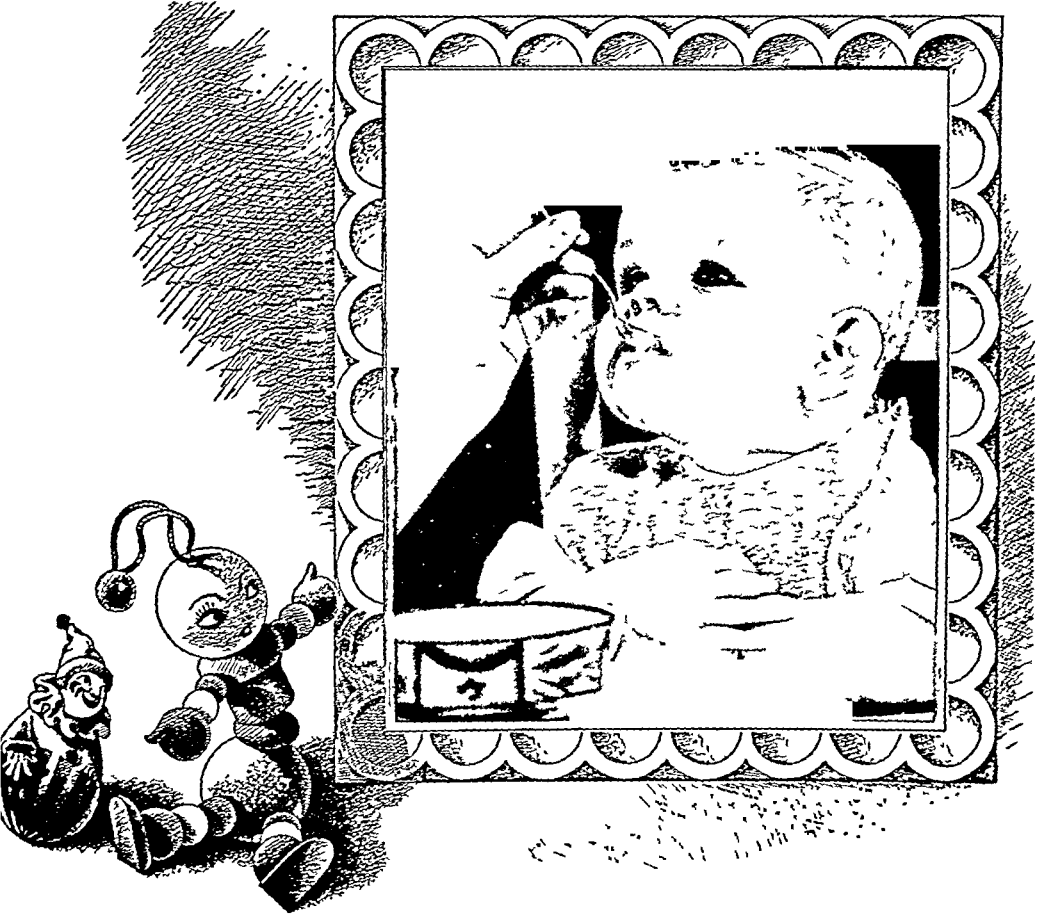
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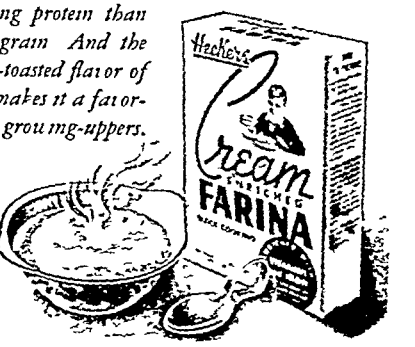
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*14 of the 100 cases were treated with other sulfonamides.
**Many of these cases also received anti-meningococcic serum intravenously.

ADMINISTRATION

In adults, the oral dose should be based on 0.10 Gm./Kg. of body weight initially, followed by 1.0 to 1.5 Gm. to be given every 4 hours day and night until the temperature has been normal for 5 to 7 days. Parenterally, sulfadiazine may be administered in 5% solution intravenously; or, subcutaneously in a concentration of 0.5%, in isotonic solution of three chlorides. For a complete discussion of dosage, see *Lederle* literature available upon request; or, New and Nonofficial Remedies, edition 1943.

ALKALIZATION AND URINARY OUTPUT—During therapy with sulfadiazine, sulfathiazole, or sulfapyridine, alkalis should be administered, unless contraindicated, in sufficient amounts to maintain an alkaline urine. Simultaneously, liquids should be given to produce a daily urinary output of between 1,000 and 1,500 cc. It is important to establish a full urinary output prior to the institution of parenteral therapy. Any of the toxic phenomena common to all these sulfonamides may appear following sulfadiazine, although the toxicity of this drug has been generally reported in the literature as less than that of sulfanilamide, sulfathiazole or sulfapyridine. Gilligan, Garb, Wheeler and Plummer (12) have recommended that alkali therapy sufficient to maintain the urine neutral or slightly alkaline is advisable when sulfadiazine is being administered; they have also stated that renal damage and urinary tract obstruction consequent upon precipitation of sulfadiazine and acetylated sulfadiazine are preventable.

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MENINGITIS A Major Triumph for Sulfadiazine

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The incidence of meningitis is fortunately less than that of the other diseases for which sulfadiazine is so frequently used. Hence, the number of reported series is smaller. The record, however, is impressive—

1941

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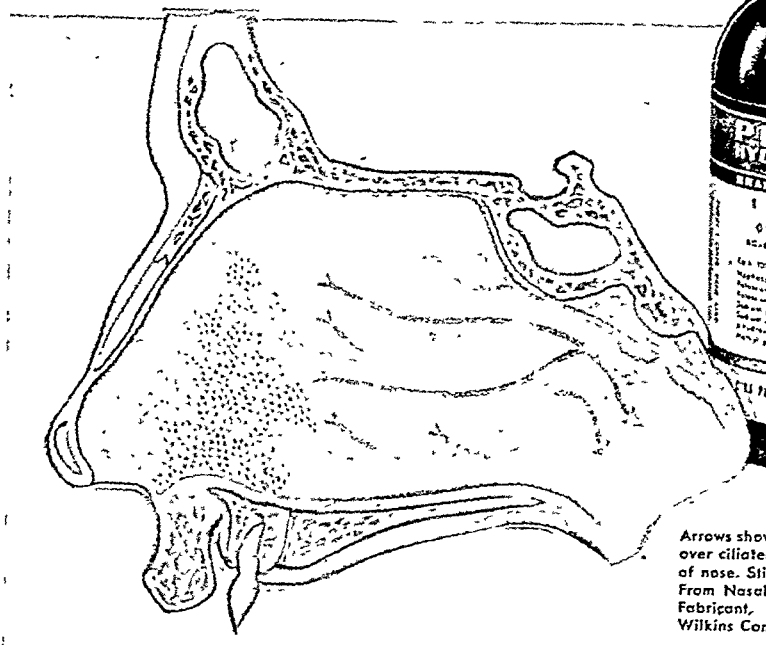
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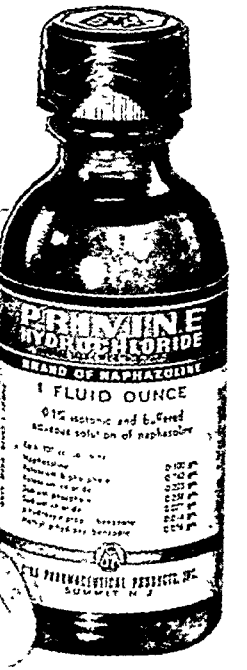
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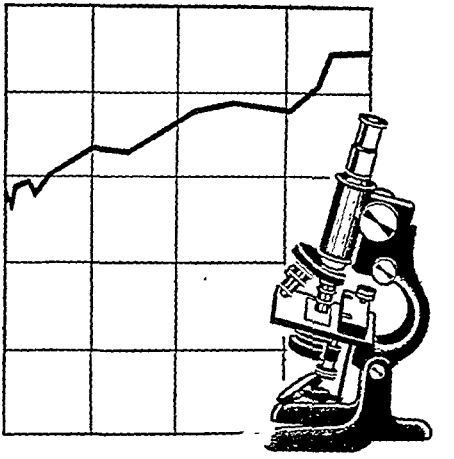
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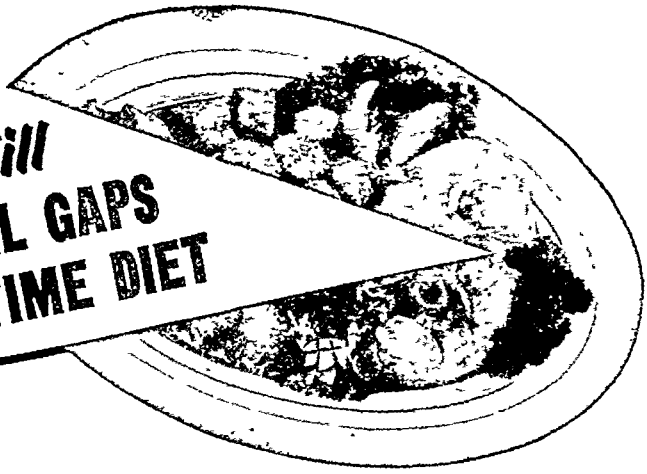
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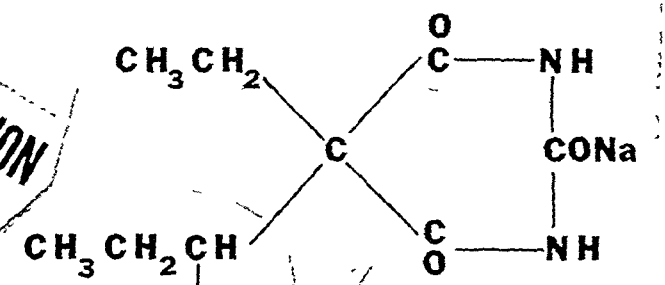
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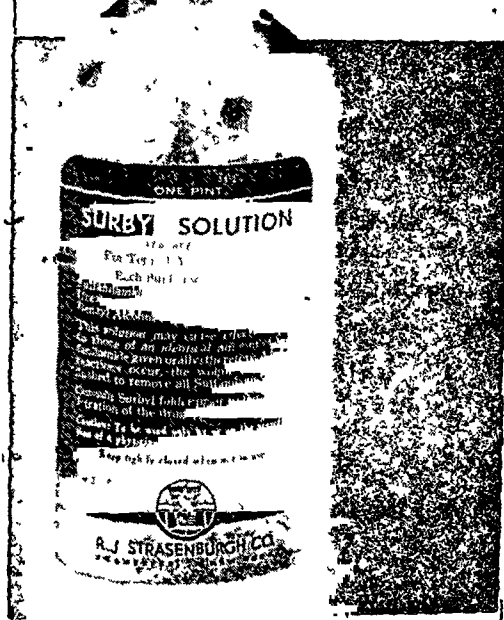
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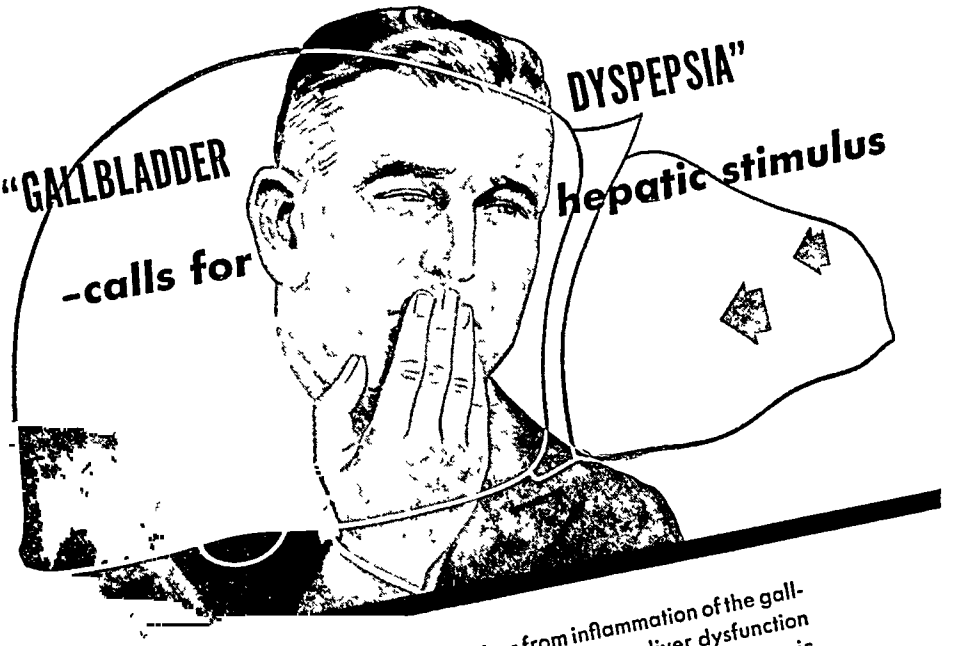
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Political Medicine Again

The JOURNAL is fortunate in being able to reproduce by permission, on page 2382 of this issue, J. N. Darling's cartoon on the Wagner-Murray-Dingell bill, *S. 1161*.

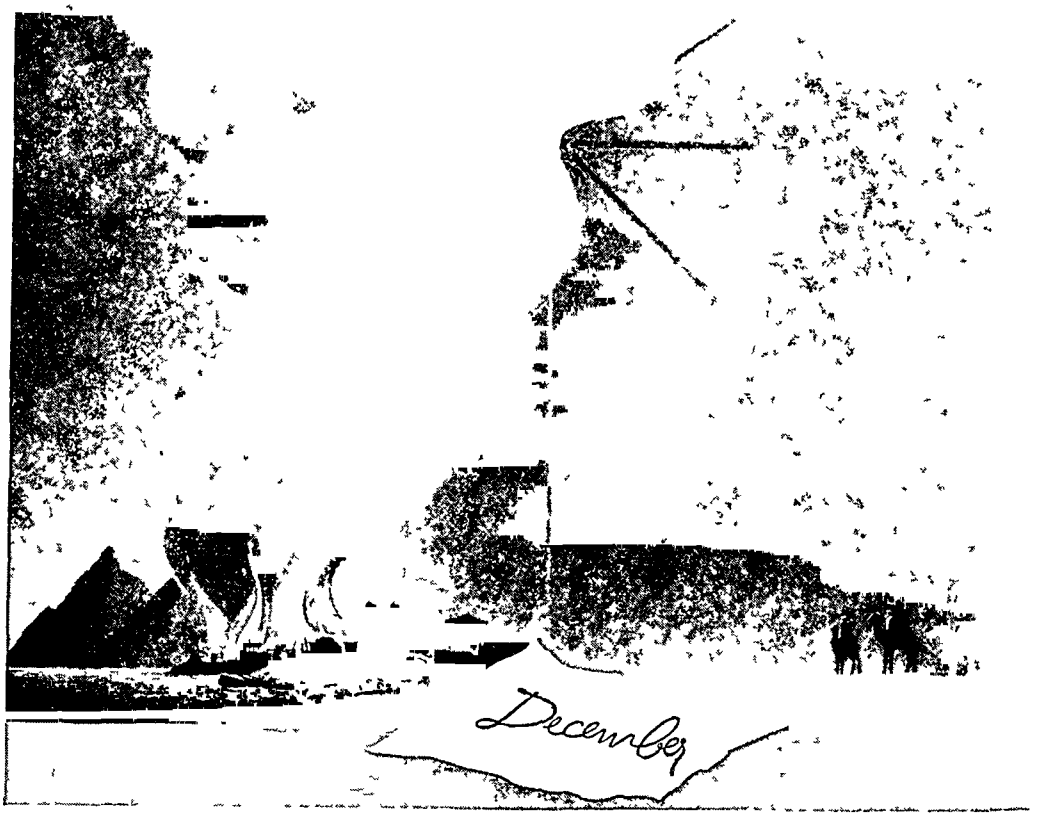
Study it carefully, for it reflects the artist's sure conception of the probable operation of state medicine under the red tape of bureaucratic control. The red tape, the questionnaires, the delay, all these are the inevitable consequences of third-party interest in the practice of medicine. They are as inescapable as taxes; they are the cumbersome machinery of government supervision. They are one of the reasons why physicians do not favor government-controlled medicine.

Other reasons were pointed out by Dr. Louis H. Bauer, chairman of the A.M.A. Council on Medical Service, in a recent debate with U.S. Senator Murray, cosponsor with Senator Wagner of *S. 1161*. The debate was conducted under the auspices of the Medical Society of the County of Monroe at the Academy of Medicine, Rochester, New York, on the evening of November 17, 1943. Present were representatives of the medical profession, the legal profession, industry, business, civic associations, and city government, the clergy; in fact, all interested parties. Thus everyone could hear for himself what the proponents of the bill claim for it, and the arguments of the opponents.

The manner in which the debate was conducted, the variety of the views expressed, and the representative character of the listeners made this a notable example of what, in our opinion at least, constitutes good public relations. We could wish that more frequent occasions could be found for this kind of debate under the leadership of organized medicine in cooperation with other groups for the discussion of pending legislation when such legislation involves broad questions of policy in the relationship of medicine and the public.

No one who listened to Senator Murray could fail to be impressed by his sincere belief that sectionalized deficiencies in medical care should be remedied by federal action and that minimum medical care for all localities of the country should be made available by a system of compulsory insurance. The key fallacy in this belief, not only in the opinion of organized medicine but also in the minds of people well informed on both sides of the question, lies in the impossibility that *one* plan, *one* formula can meet properly the numerous and varied social conditions and needs of this country of wide contrasts.

There are points at which government can and quite properly should assist, making expensive remedies available as suggested by Dr. Bauer. But no one man should be given the powers conferred upon the Surgeon General by the Wagner-Murray-Dingell bill. There is a real problem to be met. And organized medicine is meeting it as rapidly as possible and as speedily as seems consistent with safety and sound public policy.



DECEMBER... the star of Bethlehem and the bombs of Pearl Harbor... the Prince of Peace and the god of war ☆ Christmas will have little meaning to the thousands of physicians who serve their country and perhaps to thousands more who strive to carry on at home. There is little time for exchange of pleasantries in the grim business of winning a war ☆ But the Christmas Season will come again when the forces of evil are dead — when man again will do unto others as he would have done unto him.

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Local Anesthesia Treatment of Sprains

Although a sprain is classed as a minor injury, distinct losses may be incurred because of the resulting disability. The two chief joints involved in injuries are the ankle and the wrist, the joints most concerned with motility and mobility.[1] Sprains increase absenteeism or serve to retard productive capacities, effects antagonistic to our present way of life. In the military sphere the apparently insignificant sprain occurs too frequently and tends to disrupt organization too extensively to be ignored. The problem was of sufficient magnitude to warrant study, and a solution has been reported and verified.[1,2,3]

Comparison of various methods of treatment led to the conclusion that the best results were obtained by the injection of procaine hydrochloride into the involved areas. Ten to 20 cc. of a 2 per cent solution were generally injected into the injured ligaments. All tender points and the adjacent areas were anesthetized. Injections were continued until motion disclosed the absence of all pain. Preliminary x-ray studies were made to exclude fractures or injuries other than ligamentous ones. It was quickly discovered that strapping, applications, heat, and brief or prolonged rest were all unnecessary. Instead of immobilization, normal use of the joint hastened recovery. Undue mobility, however, should be avoided. Regardless of the method of treatment, patients who returned to routine activity were cured in shorter time than those whose activities were limited. It appeared that use of the injured ligaments accelerated the absorption of extravasated blood or fluid transudates with the concomitant avoidance of stasis.

The treatment of sprains by infiltration of the injured ligaments with a local anesthetic is not a new discovery but rather is a rediscovery.[4] The technic of this procedure and the explanation of the favorable action therefrom have been described in detail by the originator of this curative method.[4] The gratifying results have been amply confirmed. Success depends upon two factors: the elimination of pain and tenderness and the normally active use of the sprained joint. It is only by complete removal of pain and tenderness that the necessary active motion can be effected. This in turn permits the resumption of normal activity without loss to the individual, to the organization in which he works, or to industry.

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[1] Leinwand, I.: Mil. Surgeon 92: 60 (Jan.) 1943.
[2] Ball, C. R.: U. S. Nav. M. Bull. 38: 499 (Oct.) 1940.
[3] McMaster, P. E.: J.A.M.A. 122: 659 (July 3) 1943.
[4] Leriche, R., and Arnulf, G.: Am. J. Surg. 32: 45 (April) 1936.

Prevalence of Rickets

Today the usual practice is to administer vitamin D in some form to infants as a prophylactic measure against rickets. As a result of this prophylaxis, infantile rickets, as a clinical syndrome, has been conspicuous by its relative infrequency in urban centers. Normally this procedure is generally arbitrarily discontinued at the vague age when infancy merges into childhood.[1] Since vitamin D is necessary as long as deposition of calcium phosphate in growing areas continues,[1] there has always been legitimate argument for the continuation of vitamin D administration after children are 2 years of age, for, obviously, growth does not cease at that age or for years thereafter.

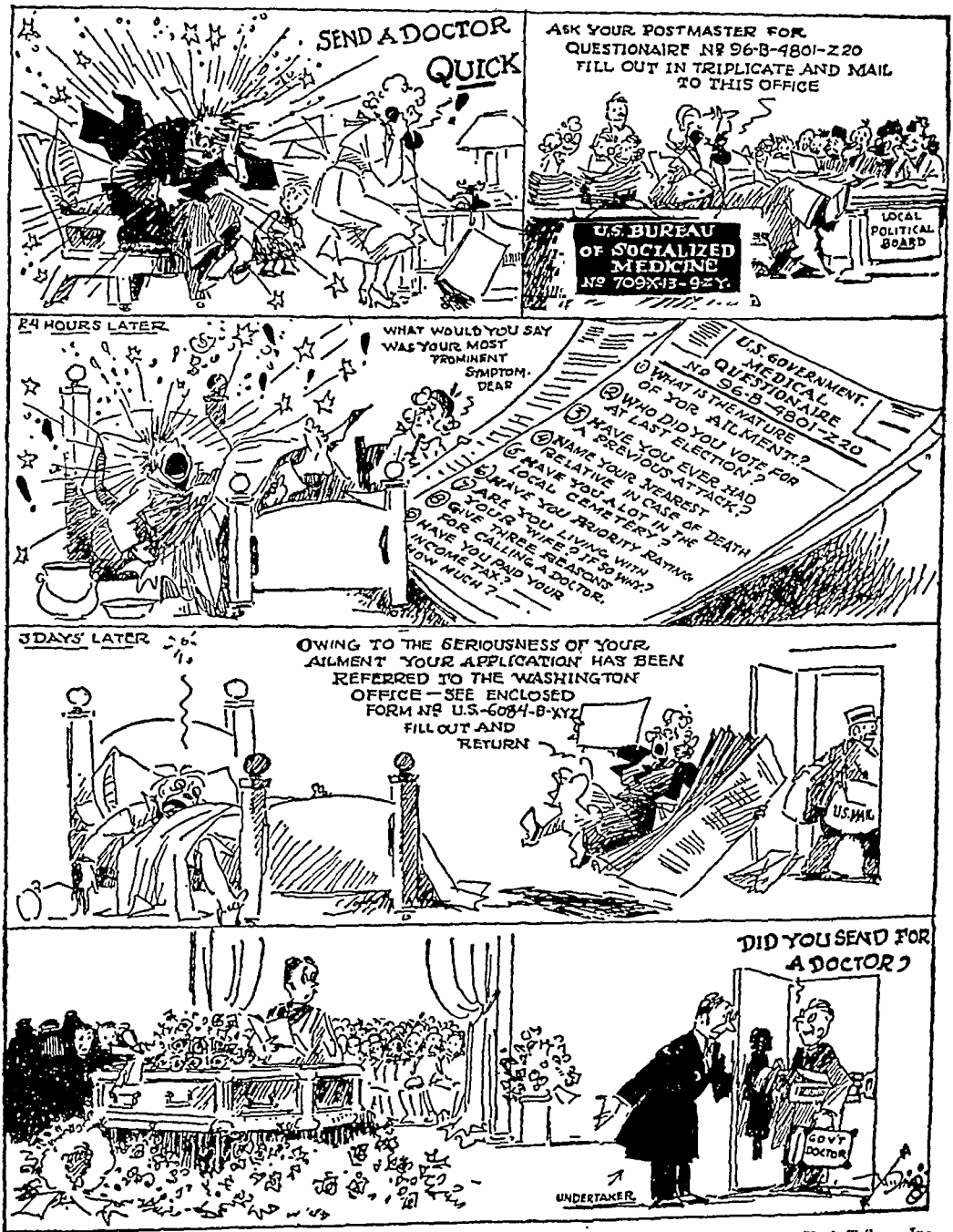
Scientific evidence in support of the latter premise has now been adduced. The most delicate and incontrovertible proof of the presence of rickets is the histologic demonstration of the typical osteoid tissue at the epiphyseal regions. In a careful study at Johns Hopkins Hospital the bones of 230 children from 2 to 14 years of age were studied histologically for evidences of rickets.[2] The total prevalence of rickets was found to be 46.5 per cent. The figures, according to years, seem to indicate that the disease occurred with scarcely diminished frequency up to 14 years of age. The finding of an increased prevalence of rickets among children dying of acute infections indicates that infectious processes increase vitamin D requirements. This work is a confirmation and an extension of the pioneer work of Schmorl.[3]

It is logical to infer from such observations that vitamin D therapy should be continued as long as growth persists. A second point to remember is that during acute infections it may be wise not only to continue vitamin D administration but perhaps to increase the dosage. It may well be that similar deductions can be applied to other vitamins essential to proper and continued growth.

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[1] Holt, L. E., and McIntosh, R.: Holt's Diseases of Infancy and Childhood, 11th ed., New York, Appleton-Century Co., 1940, p. 287.
[2] Follis, R. H., Jackson, D., Eliot, M., and Park, E. A.: Am. J. Dis. Child. 66: 1 (July) 1943.
[3] Schmorl, G.: Ergeb. d. inn. Med. u. Kinderh. 4: 403 (1909).

When the Government "Socializes" Medicine



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ADMINISTRATIVE DIFFICULTIES OF A CITY DEPARTMENT OF HEALTH IN WARTIME

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ADMINISTRATION of an official health agency under normal conditions consists of the maintenance of well-established protective services and the gradual development of new services as knowledge of preventive medicine advances or as budgetary provision for obviously productive activities can be obtained. The development of new administrative procedures is for the most part gradual and in a reasonably orderly manner. Epidemics occur from time to time and may be sufficiently serious in character to disturb temporarily the smooth running of the organization. Political change and interference have been known to disrupt seriously the administration of official health agencies, but in general there has been a consistent forward movement in public health administration in the United States.

Wartime conditions, as might be expected, disturb the normal course of public health administration. This disturbance takes two forms. First, many new problems are created, either actual new health hazards or potential hazards. Second, the demand for manpower for the prosecution of the war effort may be so great as to seriously deplete the staff of the health department, making even the maintenance of normal function difficult or impossible. During the past eighteen months, departments of health throughout the country have in varying degree experienced both an increase in demands for service and serious depletion of personnel. Except perhaps in degree, the difficulties of the New York City Department of Health are not different from those experienced by every health department in the country. I will attempt to outline some of the major problems which we have observed and, whenever possible, will describe methods used in meeting the problem.

One of the principal hazards of the civilian population during wartime is the probable increase in epidemic disease. This hazard is particularly serious in the modern, or so-called total, war in which the successful prosecution of hostilities depends almost as much, if not equally as much, upon the production of the materials of war, as upon the actual use of these materials. The rapid development of new industries for the production of war materials has been much more obvious in other parts of the country than in New York City, but even here we have seen great changes. These changes result in sudden shifts in population and the temporary lowering of living standards or at least in the temporary disturbance of normal safeguards of the public health.

The mobilization of the military forces brings together large groups of the population from widely different geographical areas and environmental conditions, with the probability of increased opportunity for transmission of infection, particularly if inadequate provision for housing has been made. All of these factors create the possibilities of increase in the common communicable diseases. Judging from the experiences of Great Britain and Canada during the first years of the war when conditions were similar to those which we have recently experienced, increased or localized outbreaks of smallpox, diphtheria, and meningitis might have been expected. Because of the potential hazard of smallpox and diphtheria, increased efforts have been made to maintain a well-immunized population.

Enforcement of smallpox vaccination laws assures us of a high degree of protection against smallpox in so far as the stable population is concerned but does not reach the shifting population, which is more numerous than in normal times. For this reason, periodic drives for adult vaccination have been resorted to. We have no way of knowing the extent of the migration into the city and therefore no measure of the degree of protection resulting from these drives. There seems to be, however, no reason to consider smallpox a major hazard.

Diphtheria immunization has taken on an increasing importance, not only because of the increase in morbidity and mortality observed in Canada but also because of the disturbing, if not significant, increase in mortality in New York City. During the first four months of 1943, 10 deaths from diphtheria were reported in the city as compared with only 7 for the entire previous year. Of these 10 deaths, only one occurred in an individual who had received a complete immunizing treatment within five years. Two of the 10 deaths occurred in children 6 and 11 years of age whose parents reported that they had been immunized in infancy. The remaining 7 had never been immunized. This would seem to indicate clearly the need of greater emphasis on the immunization program with especial atten-

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 4, 1943.

Commissioner of Health, New York City.

Newer Therapy of Burns

The story of the treatment of burns is still unfolding. The agents used for local therapy since the introduction of tannic acid continue to undergo changes for the better.[1] Superior measures to overcome the systemic symptoms are being successively employed. The importance of plasma transfusion to counteract the shock of lowered blood volume resulting from extensive burns has been appreciated for some time. Yet only now have quantitative data been accumulated which reveal the full extent of the amount of plasma needed. It appears that the usual serum or plasma therapy of extensive burns has been inadequate. Proof is now accumulating that the immediate administration of 50 to 60 cc. of plasma for each 1 per cent of body surface burned[2] is needed during the first twenty-four hours. Another 20 to 30 cc. should be injected the following day, and an equal amount two days later, making a total of 100 to 110 cc. of plasma administered for each 1 per cent of body surface involved. These figures, considerably above previous calculations, constitute instructive therapeutic guides.

Another therapeutic approach to the problem of conquering shock due to burns is the administration of chemical agents. Adrenal cortical extract and its components have been employed for this purpose with dubious results. Thiamin and renin-like substances, administered for the same purpose, have yielded no better results. Liver extract has been shown to neutralize the toxic effects of stilbesterol and sulfanilamide.[3] Recently a principle derived from crude liver extract, not the antianemic factor, has proved effective in preventing the shock usually produced by experimental burns in animals.[4]

The evolution of the therapy of burns may soon pursue a course along three paths. Technics not only of local therapy but of plasma infusions are undergoing constant alterations and elaborations. Now chemical agents are also being tested in the treatment of shock caused by extensive burns. Of these, crude liver extract seems to include a component which may effectively counteract this form of shock.

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[1] Rosenthal, S. M.: Pub. Health Rep. 57: 1923 (Dec.) 1942.

[2] Presman, D. L., Janota, M., Weston, R. E., Levinson, S. C., and Necheles, H.: J.A.M.A. 122: 924 (July 31) 1943.

[3] Chamilin, I., and Funk, C.: Arch. Biochem. 2: 9 (April) 1943.

[4] Prinzmetal, M., Hechter, O., Margoles, C., and Feigen, G.: J.A.M.A. 122: 720 (July 10) 1943.

M.D. License Plates

Physicians desirous of having M.D. license plates reassigned to them for 1944 are advised to make out application blanks at once on forms now available at the Motor Vehicle Department offices and other places throughout the state.

The application blank should be accompanied by a check and also contain a note on the physician's letterhead requesting the M.D. license plates because the holder of same is a practicing physician.

The Motor Vehicle Commissioner and his various assistants have agreed to issue, so far as possible, the same numbers as were issued last year to all applicants.

Please give this your prompt attention.

PETER IRVING, M.D., *Secretary.*

TABLE 2.—NEW YORK CITY DEPARTMENT OF HEALTH EARLY SYPHILIS CASES, 1942, COMPARED WITH AVERAGE OF 1939–1941

	Primary* and Secondary†			Early Latent‡		
	1942	Average 1939–1941	Change (Percentage)	1942	Average 1939–1941	Change (Percentage)
All ages	3,414	3,158	+ 8.1	5,274	3,524	+49.7
Under 1	1	...	....	...	...	....
1–14	14	12	+16.7	14	10	+40.0
15–19	331	242	+36.8	429	271	+58.3
20–24	960	792	+21.2	1,858	1,323	+40.4
25–29	683	682	+ 0.1	1,024	708	+40.7
30–34	493	465	+ 6.0	656	456	+53.9
35 and over	831	852	− 2.5	1,099	655	+67.8

* Evidence of chancre with or without palpable drainage node. Darkfield positive. Wassermann negative (seronegative primary). Wassermann positive (seropositive primary).

† Evidence of cutaneous, mucous membrane or mucocutaneous lesions with symptoms of generalization, as: adenopathy, early eye involvement, or early central nervous system invasion. Wassermann positive.

‡ (Asymptomatic.) Without detectable clinical signs or symptoms. Infection of less than four years' duration, with or without treatment. If duration is unknown, patient less than 25 years of age. Wassermann positive.

ably rises during wartime. The disturbances to normal family life and the general loss of sense of moral values associated with wartime conditions[9] are unquestionably responsible for this increase in infection. Prevention of the spread of this disease can best be accomplished by the elimination of possible sources of infection. This involves active suppression of prostitution and the provision of facilities for prompt treatment to render infected individuals non-infectious.

In New York City the Police Department, the District Attorney's office, and the Department of Health have worked closely together in the elimination of organized prostitution and in the control of the clandestine prostitute. There is very little evidence of organized prostitution in the city, but in spite of this fact there is a disturbing increase in venereal disease, especially in the younger age groups.

Because of the withdrawal from the city for the Army of some 500,000 men between the ages of 18 and 35, reported morbidity rates have little significance. The routine serologic tests by Selective Service add another factor which makes a comparison of reported morbidity difficult. A comparison of reported early cases of syphilis seems to be the most reliable index of trends in venereal infection. As seen in Table 2, there is evidence of a marked increase in new infections.

No discussion of epidemic disease in wartime would be complete without some mention of influenza. We are all acutely aware of the association of the last pandemic with World War I. We have learned much about influenza since 1918, and we know that it may be caused by several different types of virus and that it spreads rapidly from person to person and along normal channels of travel. We still do not know, however, the mechanism of introduction, or perhaps modification, which results in a pandemic. Unfortunately, there is no real evidence that influenza can be prevented by vaccination. There is some reason for optimism in the belief that the sulfonamide drugs may be effective in the treatment of the serious complications of influenza which were responsible for the high fatality in the last pandemic. Early recognition of the occurrence of an epidemic and prompt medical care are certainly important in the prevention of this disease.

In order to detect the first signs of increase in respiratory infections which might indicate a beginning epidemic of influenza in New York City, the Health Department receives weekly reports on representative samples of absenteeism due to respiratory infection in our population. The sample population is approximately 57,000. This system provides a sensitive index of the occurrence of illnesses which would indicate a developing epidemic of influenza.

Increased demands have been made upon health departments which are less obviously, but none the less directly, connected with the war. The requirement of birth certificates as a prerequisite for employment or for other reasons has greatly increased the work of divisions of vital statistics. In New York City requests for transcripts of birth certificates increased from approximately 5,000 per month in 1939 to approximately 40,000 per month in 1942.

Fuel oil rationing created new problems in those cities where maintenance of minimum temperatures in multiple dwellings is required. In New York City the Department of Health is charged with the responsibility of the enforcement of a minimum temperature of 65° F. in multiple dwellings. In normal times complaints of inadequate heat vary from 1,000 to 3,000 per month during December and January. During the past year, these complaints increased to approximately 12,000 per month during winter.

These and other increased demands upon the staff of the New York City Department of Health coincided with serious losses in personnel resulting from the needs of the armed forces and war in-

TABLE 1.—MENINGOCOCCUS MENINGITIS IN NEW YORK CITY
Reported Cases and Deaths, January, 1921—May, 1943

Year		Jan.	Feb.	March	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1921	Cases	22	29	34	20	26	27	20	27	19	16	17	22	279
	Deaths	11	16	12	13	11	16	11	13	11	7	13	13	147
1922	Cases	22	30	41	19	23	14	12	13	11	11	13	9	218
	Deaths	8	16	21	9	14	6	8	5	6	5	8	4	110
1923	Cases	9	11	24	14	17	7	7	10	13	8	5	8	133
	Deaths	6	8	11	7	11	4	5	5	5	4	2	9	77
1924	Cases	15	12	10	24	10	15	19	14	10	10	10	7	156
	Deaths	6	8	9	13	7	9	12	8	2	9	10	11	104
1925	Cases	12	9	14	8	9	9	10	13	11	7	8	10	120
	Deaths	8	3	18	7	8	8	7	5	10	8	8	4	94
1926	Cases	5	14	19	26	16	3	15	11	17	12	11	21	170
	Deaths	9	10	9	14	18	3	10	12	8	8	3	10	114
1927	Cases	22	11	22	18	22	14	9	14	20	5	9	11	177
	Deaths	11	12	14	11	17	7	8	6	7	6	10	11	120
1928	Cases	15	37	94	140	151	112	75	128	94	98	72	86	1,102
	Deaths	8	27	46	80	54	50	57	63	39	41	36	39	540
1929	Cases	126	124	126	108	106	72	73	57	50	46	54	58	1,000
	Deaths	68	71	63	39	47	32	41	27	22	31	17	28	486
1930	Cases	51	59	76	67	41	30	26	43	20	31	27	32	503
	Deaths	21	25	34	36	26	19	19	26	10	17	14	20	267
1931	Cases	66	46	60	35	27	26	27	16	19	19	28	23	392
	Deaths	39	25	29	22	9	16	12	7	9	10	16	13	207
1932	Cases	29	25	26	21	15	22	14	11	9	11	13	11	207
	Deaths	10	10	23	15	8	11	7	9	3	8	6	4	114
1933	Cases	17	14	9	5	14	9	5	14	4	3	7	13	114
	Deaths	12	5	4	6	8	5	5	8	6	2	6	6	73
1934	Cases	7	13	15	4	8	9	6	6	6	6	12	10	102
	Deaths	6	13	7	5	3	4	7	6	2	1	8	11	73
1935	Cases	12	14	61	91	82	75	37	42	38	24	20	33	529
	Deaths	8	5	35	34	37	29	13	17	24	12	10	19	243
1936	Cases	74	63	104	67	62	29	25	27	14	19	31	23	538
	Deaths	27	33	39	23	23	13	17	10	7	7	13	14	226
1937	Cases	36	26	31	25	17	11	16	14	7	19	13	13	228
	Deaths	16	16	11	13	5	3	9	7	3	9	4	5	101
1938	Cases	12	13	13	9	6	19	6	7	7	6	7	7	112
	Deaths	6	6	6	2	4	8	5	3	2	2	7	2	53
1939	Cases	10	9	9	7	9	4	3	4	5	1	7	3	71
	Deaths	8	6	2	1	1	..	2	5	2	3	2	4	36
1940	Cases	4	3	1	4	5	5	2	2	8	3	3	8	48
	Deaths	1	1	1	1	3	1	..	1	1	3	1	3	17
1941	Cases	9	7	8	8	16	10	13	6	8	4	17	12	118
	Deaths	4	4	4	6	8	3	4	1	..	1	3	4	42
1942	Cases	15	21	54	57	53	48	29	22	19	25	24	44	411
	Deaths	2	2	11	15	14	6	7	1	4	4	9	9	84
1943	Cases	74	119	182	186	231								
	Deaths	18	22	25	44	21								

tion to re-stimulation at the time of school entrance.

Meningococcus meningitis has not infrequently increased in prevalence during wartime, presumably, first, as a result of greater contacts resulting from the mobilization of troops and, second, as a result of the spreading of the disease to civilian populations. During 1942, an increase in reported cases was observed in New York City, a total of 416 cases for the year representing the highest incidence since 1936. During the first five months of 1943, approximately 805 cases were reported (Table 1). This represents the highest incidence of meningitis for a similar period since 1905. Unfortunately, no effective preventive measures are available and any effort to limit mortality must be directed toward early diagnosis and prompt, effective treatment. Coinciding with the more general use of the sulfonamides, a gross reduction in case fatality has been observed during recent years. The Department of Health provides twenty-four-hour consultation service for the diagnosis and treatment of meningitis, and in the approximately 150 cases in which this service was given during 1942, the case fatality rate was considerably less than 5 per cent. Increasing efforts are being made to accomplish early diagnosis and adequate treatment.

Tuberculosis is not generally considered an epidemic disease, and yet in wartime it may become a very serious problem. Increased hours of work necessary for production of munitions and supplies coupled with a lowered level of general nutrition, which may result if food supplies become seriously curtailed, may bring a substantial increase of this disease. In England in the past few years there has been a very serious and alarming rise in tuberculosis morbidity and mortality. Prevention of such an increase in this country requires constant vigilance, public education, and adequate facilities for the prompt recognition and treatment of cases to prevent further spread of infection.

As yet there is no definite evidence of an increase in either morbidity or mortality from tuberculosis in New York City, but there can be little doubt that the conditions under which increases may be expected do exist. This threat can only be met by increased efforts toward early diagnosis, particularly in industrial groups.

The incidence of syphilis, too, almost invari-

tions and entrusted to less qualified personnel as a screening procedure leaving only the strictly technical aspects to be cared for by the professional employee. An example of this is camp inspection work.

The use of volunteers enrolled in the Division of Civilian Mobilization can be effectively utilized in connection with immunization campaigns, the dissemination of health information, surveys for the collection of data concerning communicable disease outbreaks, the transportation of clinic patients, clerical assistance, etc. Routine procedures and report forms can be profitably analyzed to insure retention of no more than is absolutely essential. For example, the standard routine requiring a certain number of nursing visits for the various types of cases carried may have to be revised downward as an emergency measure. You will be agreeably surprised to find how profitable such a review can be in terms of saved effort as well as clerical time. In offices equipped with dictaphone or ediphone machines, the efficient use of such aids will do much to offset stenographic shortages. The foregoing are only a few random suggestions to call attention to the truism that a great deal can be accomplished under adverse conditions if the will exists to utilize effectively the facilities already at hand and if a reasonable amount of ingenuity is exercised.

Viewing the public health program as a whole, it is evident from disease trends in upstate New York during the last twelve months that certain health activities must be given a high priority rating and that certain other activities may receive less attention temporarily. Public health economy is faced with much the same conditions influencing the tug-of-war between the military and civilian economy.

A determination as to the emphasis to be placed on the various activities must be made. This must be based on an analysis of local, state, and national trends of disease incidence plus consideration of numerous factors resulting from the war effort, such as population movements, overcrowding, dietary restrictions, civilian tension, etc

Dr. Stebbins' reference to the British experience in communicable disease trends as a result of war will be helpful in evaluating our own activities and in planning for a better-informed service. It is already fairly clear that extra attention must be given to the control of the venereal diseases and tuberculosis. Maintenance of high sanitation standards inclusive of pasteurization requirements is obligatory in warding off the inroads of certain of the communicable diseases. Emphasis must be placed on protection by immunization, particularly against smallpox and diphtheria. Outbreaks of communicable diseases must be attended to promptly. Nor can the activities concerned with maternity and infancy be slighted. Most of the foregoing are activities largely dependent on the efforts of public health personnel. Certain other essential activities, however, such as nutrition, child care facilities, and farm and home accident prevention, can be entrusted to the numerous agencies already interested in them. However, the health officer must not only assume the responsibility of the proper channeling and coordination of such efforts but he must also judge whether the desired results are being attained. If not, he should take steps to see that they are.

It would seem that the foregoing selection of activities on a priority basis constitutes a sizable program if completely serviced. In certain instances where lack of personnel makes it imperative it may be necessary to restrict activities to that portion of the total problem yielding the highest return. For example, syphilis and tuberculosis cases may be classified according to their importance as a hazard to the public health. Complete control efforts may then be concentrated on those cases which present the greatest hazard. In any event, close scrutiny should be made of the various components of each control program to be certain that those activities which come first in the order of their importance continue to be properly done before proceding to supplementary control activities. For example, effort spent on searching out contacts to a discovered case of syphilis is a definite waste of time unless there is certainty that essentially all infectious syphilis cases carried on the roster are under treatment and remain under treatment.

Mention was made previously of population concentrations resulting from the war effort. Such areas demand priority consideration by health departments for reasons which are evident to all of us. In caring for these problems, it is necessary for local, state, and federal agencies to work in unison, each supplementing the other. A minor, but none the less serious, rural problem of this order is the migratory farm labor camp.

Since today is tomorrow's yesterday, consideration must likewise be given to new situations calling for further adjustment of the health program. It is not too soon to take cognizance of the returning soldiers, sailors, and marines, many of whom will be infected with tropical diseases, such as malaria and the intestinal diseases. It is necessary that we be alert and prepared to meet such new situations. It also can be expected that rising federal taxes will result in increased demands for lower state and local taxes. Health departments along with other governmental agencies will likely suffer thereby. Proof as to the value received for each tax dollar spent on the prevention of disease will be necessary.

For practical purposes the burden of proving any pregnancy lasting more than 280 days would seem to rest on the claimant. Under such circumstances the claimant would be charged with presenting overwhelming medical evidence of the prolonged nature of the gestation. Any child born after September 15, 1942, could therefore not be considered as having been conceived before December 8, 1941, in the absence of overwhelming evidence to the contrary. —*J.A.M.A.*

TABLE 3.—CITY OF NEW YORK DEPARTMENT OF HEALTH EMPLOYEES IN THE ARMED FORCES ON APRIL 26, 1943

Type of Personnel	Number of Employees on Staff	Number of Employees in Service	Percentage of Staff in Service
Full-time Medical	84	15	17.9
Part-time Medical and Dental	706	160	22.7
Nurses	893	57	6.4
Technical Group	588	35	6.0
Clerical and Labor	1,145	91	7.9
Grand Total	3,416	358	10.5

dustries. Table 3 shows the number of employees who have entered the armed forces, according to type of personnel. These vacancies are all charged to military leave and can be filled only by temporary appointments. This obviously complicates the problem in that temporary appointees have no civil service standing.

The increasing shortage of manpower has progressively made it more difficult to replace losses and has increased the losses because of higher salaries offered in war industries or other private or public employment. The natural result is that new employees are definitely less well qualified than those who are hired under normal conditions. Civil service rules usually require that all appointments, including temporary appointments, be made from an established list of eligibles. With the present rapid turnover, established lists for the most part have been exhausted, and continuous pressure is being brought to bear to hold examinations in order to create lists from which appointments may be made. We have felt that the creation of new lists at this time, when less desirable applicants would be available or standards would have to be lowered, presented a serious threat to the future efficiency of the department.

To avoid the establishment of lists of inferior caliber which would have to be used after the war, two suggestions have been made: duration appointments and list-skimming. Under the first plan, appointments would be made for the duration of the war plus six months, with the understanding that the time spent in the position would be accepted for experience rating by the Civil Service Commission. Thus something would be added to the desirability of the position, although it would not assure permanent employment. Under the second plan, an examination with somewhat lowered qualification requirements would be held and only the top one-fourth or one-half would be accepted for a permanent list, depending on the immediate need. Since only the number of persons required would be accepted, no permanent list would be established. Only by some such measures can we fill present needs without permanently lowering the standards of the department.

Discussion

Dr. V. A. Van Volkenburgh, *Albany*, Assistant Commissioner, Local Health Administration, New York State Department of Health—I am certain that each of us has profited greatly from Doctor Stebbins' instructive and thought-provoking account of the problems facing health departments during war. As has been suggested, the pressing difficulty is how to meet these problems despite the loss of personnel. Upstate health departments, like New York City's, have experienced serious personnel losses. For example, 15 per cent of the part-time local health officers are on military leave. In addition, 19 per cent of the full-time public health physicians under 45 years of age employed by state and local health departments are at present in the armed or allied services. The majority of the latter are experienced public health administrators and cannot be replaced by inexperienced physicians without first providing time-consuming training and schooling. Nor is there existent any reservoir of unemployed experienced public health physicians from which to obtain replacements. The State Department of Health has lost 27 per cent of its engineering staff and 8 per cent of its milk sanitarians. The drain on the public health nursing staff will become increasingly more serious. The depletion of clerical employees because of the higher wages paid by industry threatens an early breakdown of clerical routines essential to disease control procedures.

In order to maintain necessary public health services essential to the war effort in the face of dwindling personnel, it is obvious that serious thought must be given to conserving the time and effort of health department personnel as well as to the adjustment of the public health program to meet changed conditions.

There are many ways in which conservation of health personnel can be effected. Most of our cities are served by several official and nonofficial health organizations such as the school health service, the visiting nurse association, the tuberculosis association, the insurance agencies, etc., in addition to the city health department. It would seem logical, and in certain instances imperative, that these disjointed services be pooled and placed under a single administrative group, thus improving the efficiency of the services as a whole and at the same time compensating for existing shortages of administrative personnel. In both urban and rural areas, the utilization of supplementary personnel can be developed. For example, the work of the public health nurse can be increased by the use of registered nurse assistants employed on a visit basis for bedside care, thus freeing the time of the public health nurse for preventive services. Such nurses can also be used for servicing clinics. Married or retired unemployed nurses who are willing to furnish part-time service of this nature may be found in most communities. This has been proved. Inspections, ordinarily performed by professional staff members, can be standardized with the aid of printed instruc-

tions and entrusted to less qualified personnel as a screening procedure leaving only the strictly technical aspects to be cared for by the professional employee. An example of this is camp inspection work.

The use of volunteers enrolled in the Division of Civilian Mobilization can be effectively utilized in connection with immunization campaigns, the dissemination of health information, surveys for the collection of data concerning communicable disease outbreaks, the transportation of clinic patients, clerical assistance, etc. Routine procedures and report forms can be profitably analyzed to insure retention of no more than is absolutely essential. For example, the standard routine requiring a certain number of nursing visits for the various types of cases carried may have to be revised downward as an emergency measure. You will be agreeably surprised to find how profitable such a review can be in terms of saved effort as well as clerical time. In offices equipped with dictaphone or ediphone machines, the efficient use of such aids will do much to offset stenographic shortages. The foregoing are only a few random suggestions to call attention to the truism that a great deal can be accomplished under adverse conditions if the will exists to utilize effectively the facilities already at hand and if a reasonable amount of ingenuity is exercised.

Viewing the public health program as a whole, it is evident from disease trends in upstate New York during the last twelve months that certain health activities must be given a high priority rating and that certain other activities may receive less attention temporarily. Public health economy is faced with much the same conditions influencing the tug-of-war between the military and civilian economy.

A determination as to the emphasis to be placed on the various activities must be made. This must be based on an analysis of local, state, and national trends of disease incidence plus consideration of numerous factors resulting from the war effort, such as population movements, overcrowding, dietary restrictions, civilian tension, etc

Dr. Stebbins' reference to the British experience in communicable disease trends as a result of war will be helpful in evaluating our own activities and in planning for a better-informed service. It is already fairly clear that extra attention must be given to the control of the venereal diseases and tuberculosis. Maintenance of high sanitation standards inclusive of pasteurization requirements is obligatory in warding off the inroads of certain of the communicable diseases. Emphasis must be placed on protection by immunization, particularly against smallpox and diphtheria. Outbreaks of communicable diseases must be attended to promptly. Nor can the activities concerned with maternity and infancy be slighted. Most of the foregoing are activities largely dependent on the efforts of public health personnel. Certain other essential activities, however, such as nutrition, child care facilities, and farm and home accident prevention, can be entrusted to the numerous agencies already interested in them. However, the health officer must not only assume the responsibility of the proper channeling and coordination of such efforts but he must also judge whether the desired results are being attained. If not, he should take steps to see that they are.

It would seem that the foregoing selection of activities on a priority basis constitutes a sizable program if completely serviced. In certain instances where lack of personnel makes it imperative it may be necessary to restrict activities to that portion of the total problem yielding the highest return. For example, syphilis and tuberculosis cases may be classified according to their importance as a hazard to the public health. Complete control efforts may then be concentrated on those cases which present the greatest hazard. In any event, close scrutiny should be made of the various components of each control program to be certain that those activities which come first in the order of their importance continue to be properly done before proceding to supplementary control activities. For example, effort spent on searching out contacts to a discovered case of syphilis is a definite waste of time unless there is certainty that essentially all infectious syphilis cases carried on the roster are under treatment and remain under treatment.

Mention was made previously of population concentrations resulting from the war effort. Such areas demand priority consideration by health departments for reasons which are evident to all of us. In caring for these problems, it is necessary for local, state, and federal agencies to work in unison, each supplementing the other. A minor, but none the less serious, rural problem of this order is the migratory farm labor camp.

Since today is tomorrow's yesterday, consideration must likewise be given to new situations calling for further adjustment of the health program. It is not too soon to take cognizance of the returning soldiers, sailors, and marines, many of whom will be infected with tropical diseases, such as malaria and the intestinal diseases. It is necessary that we be alert and prepared to meet such new situations. It also can be expected that rising federal taxes will result in increased demands for lower state and local taxes. Health departments along with other governmental agencies will likely suffer thereby. Proof as to the value received for each tax dollar spent on the prevention of disease will be necessary.

For practical purposes the burden of proving any pregnancy lasting more than 280 days would seem to rest on the claimant. Under such circumstances the claimant would be charged with presenting overwhelming medical evidence of the prolonged nature of the gestation. Any child born after September 15, 1942, could therefore not be considered as having been conceived before December 8, 1941, in the absence of overwhelming evidence to the contrary. —*J.A.M.A.*

ASEPTIC NECROSIS AND BONE INFARCTS IN CAISSON AND NONCAISSON WORKERS

HENRY K. TAYLOR, M.D., F.A.C.P., F.A.C.R., New York City

BONE infarcts and areas of aseptic necrosis have been found in individuals who worked under increased atmospheric pressures. Lesions of a similar type have also been observed in individuals who were never exposed to increased pressures.

Recognized textbooks describe caisson disease as an acute condition which appears in individuals working under increased atmospheric pressures, who have been too rapidly decompressed. The terms "caisson disease," "bends," "diver's palsy," "chokes," and "staggers" are synonymous; they refer to one and the same condition. Armstrong[1] introduced the term "aero-embolism." Fulton[2] terms it "decompression sickness"; Hankowitz[3] refers to it as decompressed air illness, and End[4] calls it compressed air illness.

Air is composed approximately of 20 per cent oxygen, 79 per cent nitrogen, and less than 1 per cent of carbon dioxide and rare gases. When an individual is subjected to increasing pressures, quantitatively more of the gases in the air are absorbed. All tissues absorb and act as a solvent for nitrogen. The solubility of nitrogen is greater in the fats and lipoids. They are capable of holding five times as much in solution as the nonfatty tissues. The solubility of nitrogen within all tissues increases as the atmospheric pressure rises, with a time factor necessary for saturation. According to Boyle's law, a given mass of gas varies inversely as the pressure, the temperature being constant; as the pressure rises, the volume decreases, and vice versa.

To quote Musser: "According to Dalton's law, gases are soluble in fluids according to their partial pressures. At 4 atmospheres, therefore, the plasma leaving the lungs holds four times as much nitrogen as it would under normal atmospheric conditions. The tissues, in turn, become saturated at the new level at a rate which varies with the particular ability of the tissue to absorb the gas and with the adequacy of the circulation to bring nitrogen to the part. Fat, which absorbs about five times as much nitrogen as water, is saturated slowly. Ligaments, bones, and the white matter of the spinal cord attain a new equilibrium more gradually because of the limited blood supply. Even with the increased circulation rate consequent upon manual work, several hours may elapse before the entire body is saturated at the new level."[5]

To release from the body the gases which went into solution under increased atmospheric pressure, without producing symptoms, requires a slow decompression, a gradual reduction to normal atmospheric pressure. When an individual is decompressed slowly, there is a gradual release of the nitrogen in solution, which escapes with respiration and causes no physical disturbances. The time required for decompression depends upon the pressure, and the time spent working under that pressure.* According to standard United States Navy decompression tables, a diver who descends to a depth of 250 feet and remains there for twenty minutes must spend two hours and twenty-six minutes in decompressing. Should he extend his stay on the bottom ten minutes longer, his decompression time will increase by more than an hour. When decompression is rapid, there is a sudden release of nitrogen from the tissues into a gaseous state, causing a physical disturbance, and this is referred to as caisson disease, bends, aero-embolism, decompression sickness, etc. This is very painful and may be serious. The same condition occurs when there is a sudden reduction in pressure from 1 atmosphere to a small fraction thereof. To overcome these symptoms, the individual returns to a greater atmospheric pressure, permitting the nitrogen to change from a gaseous to a liquid state in the body fluids and tissues.

Musser claims that "there is little or no danger at pressures less than 15 pounds above normal atmospheric conditions, no matter how rapidly the decompression is accomplished." He also claims that "exposure for short intervals, even to extremely high pressure, is not followed by accidents. For this reason, naked deep-sea divers have little or no difficulty because they remain under water for only two or three minutes. In the caissons of the St. Louis Bridge Company no cases of bends occurred among many visitors although of 352 employees, 12 were killed and 18 seriously injured by caisson disease."

Roentgen Appearance

The lesion is usually limited to either end or both ends of a long bone, and more than one bone may be involved. In caisson workers, the lesions are usually extensive, multiple, and often bilateral. In some cases, it is limited to either the

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* Decompression tables are available.

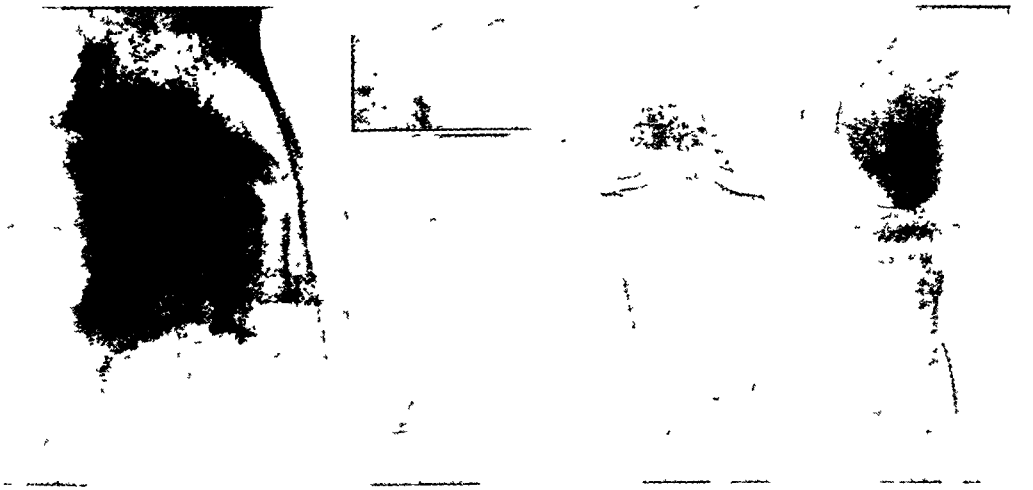


FIG. 1. R. B., male, aged 37. Right hip and left shoulder show changes of aseptic necrosis. Bone infarcts are present in the lower ends of the femoral shafts and upper ends of the tibial shafts. History of caisson disease.

proximal or distal end of the medullary cavity, or both; to either diaphyseal end or both. In other cases, it is limited to the spongy bone in the epiphyseal end. In still other cases, it involves the medullary cavity of either end or both, and the contiguous spongy bone of the diaphyseal and epiphyseal end of the bone. The articular cartilage may participate in the lesion when the epiphyseal end of the bone is involved. The central portion of the shaft is rarely involved. When in the shaft, the lesion appears as an irregular area of altered or decreased density, which sometimes, not always, is surrounded by a thin, linear area of increased density. This thin, linear area of increased density at the peripheral portion of the lesion represents a partial reossification of this area. Linear ossifications from the periphery may project into the area of decreased density in one or more places for variable distances. The lesion may show an increase in density depending upon the extent of the reparative changes. The lesion is limited to the medullary portion of the bone and does not encroach upon the cortex. The area of altered density in the medullary portion of the bone may extend into the spongy diaphysis. When the epiphyseal end of the bone and articulating cartilage are involved, the articulating surface may or may not present an irregularity in contour. Often there is an alteration in the shape of the articulating surface. Infractions or sequestrations or areas of aseptic necrosis may be present. The end of the bone may be of uneven density, and may show fibrocystic changes, with intervening areas of increased bone density and bone sclerosis. The joint space may be narrowed and partially destroyed. Productive bone changes may develop at the articular margins, identical in appearance with a hypertrophic osteo-arthritis.

When the hip is involved, the head of the femur may be flattened and enlarged. Fibrocystic and sclerotic bone changes may involve the head of the femur as well as the acetabular shelf. Marginal osteophytes and joint bodies may develop. There are evidences of decalcification and softening.

The lesions may be bilaterial and most often involve the lower extremities.

When the shoulder is involved, the changes are essentially limited to the head of the humerus. There are evidences of softening, irregularity in contour, and aseptic necrosis. The head of the humerus does not always enlarge. Joint bodies may develop. The contiguous portion of the shaft may also be involved.

If the lesion in the shaft is small, and limited to the diaphyseal end of the bone, it may be gradually replaced by new bone and disappear completely. If the lesion is in the epiphyseal end of the bone, and subsequently borders on the joint, it leads to the development of secondary hypertrophic osteo-arthritic changes.

The linear area of increased density surrounding the shaft lesion is evidence of a reparative process, a healing phase, and was described by Phemister[1] as a creeping substitution. This creeping substitution decreases the size of the area of altered or diminished density, the infarcted area. Eventually this process of replace-



FIG. 2. L. L., female, aged 46. Acrobatic dancer as a girl. History of fracture of right femur 16 years ago. Shoulders reveal areas of aseptic necrosis. Bone infarcts present in the lower ends of femoral and upper ends of tibial shafts.

ment, which is never complete in the large lesions, slows down and ceases.

In caisson workers, the contention is that nitrogen in a gaseous state, as either an embolus or a pressure effect upon the blood vessel, or both, is responsible for the death of the tissue. In noncaisson workers, the lesions are neither as extensive nor as numerous, and the causative factor is unknown. Many possibilities have been suggested: fat emboli, bland infarcts, septic foci, peripheral vascular disease, etc.

The subject of caisson disease was recently brought to the fore by Ross Golden's[7] book *Diagnostic Radiology*. Hodges, Phemister, and Brunschweig, the authors of the section on bone diseases, presented roentgenograms in 2 cases of individuals who worked under increased pressures and gave histories of having had attacks of the bends. The bone changes were causally related to the occupation and diagnosed as caisson disease in bone. Four cases were published by Kahlstrom, Burton, and Phemister[8] as aseptic necrosis of bone occurring in individuals working under increased pressures in February, 1939. In March, 1939, these same authors published 3 cases of aseptic necrosis of undetermined cause in individuals who did not work under increased pressures, who gave no history of ever having had attacks of the bends. Since then, several articles have appeared in the literature illustrating caisson disease in bone.

I have collected histories of shaft and joint lesions in 38 patients, many of them identical in appearance with those described as caisson disease. In no instance was there an occupational history of working under compressed air, or of subjection to sudden and violent changes in atmospheric pressure. In March, 1942, Kahlstrom[9] reported bone infarcts in 4 individuals who had not been exposed to increased atmospheric pressures. Three had arteriosclerosis.

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The subject of caisson disease is an interesting one. Particularly is this so when one considers the metropolitan area of New York, with its tunnels and underground constructions, which required extensive operations under increased atmospheric pressures.

Bone changes were not observed until recently, and only in a few cases. Ferguson,[10] in his recent book on the spine and extremities, makes no mention of it. His material was gathered in New York City in an orthopaedic hospital.

King,[11] in his monograph on "Localized Rarefying Conditions of Bone," makes no mention of caisson disease as a causative factor in aseptic necrosis, or in osteochondritis dissecans.

Aero-Embolism

The air embolism theory presupposes a sudden change in atmospheric pressure. In a caisson worker this is the result of an improper decompression with at least one, and perhaps more than one, attack of caisson disease. This would be logical if all the tunnel workers with bone changes had had one or more attacks of the bends. Actually, this is not so. Recently Bell, Edson, and Hornick[12] made a roentgen osseous survey of 32 tunnel workers who were free of symptoms referable to the joints and long bones. All showed bone changes. Of these 32, 14 admitted either a positive or doubtful history of one or

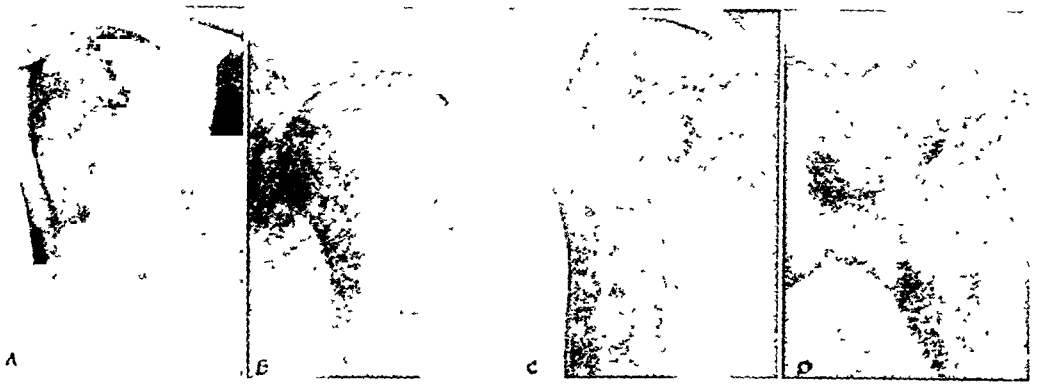


FIG. 3. (*a*) T. P., aged 44. Increased density in the articular portion of the humeral head. Worked under increased pressure for twenty years. Denies caisson disease.
(*b*) H. McF., aged 43. Areas of aseptic necrosis. History of caisson disease.
(*c*) C. W., aged 56. Large bone infarct in upper end of the shaft of the humerus. Aseptic necrosis of the head. Caisson disease thirty-five years ago.
(*d*) S. K., aged 36. Shows altered bone density and deformity of the head of the humerus. Caisson worker. History of caisson disease.

more attacks of the bends, and the other 18 denied ever having had an attack. These 18 had had long periods of continuous employment under compressed air, with a long occupational history. Even though the group of 32 is small, the fact that 18, or 66 per cent of them, never had had an attack makes it obvious that one or more attacks of the bends is not necessary to produce bone changes. Perhaps the attacks of the bends are not responsible for the bone changes at all.

Two questions present themselves: (1) what effect, if any, is there following an attack of the bends? and (2) what is the mechanism in the development of bone and joint changes in compressed air workers?

A rapid decompression brings forth an attack. There has been a quick change in atmospheric pressure. There is a liberation of those gases in solution in the blood and tissues from a liquid to a gaseous state. This is a physical change. When gases come out of solution they should do so throughout the entire body. The rate of return to a gaseous state varies in different parts of the body and depends upon the solubility within the tissues, the concentration, and the blood supply. The liberation, from a quantitative standpoint, will be five times as great from the fatty tissues. The rate of liberation will depend upon the blood supply. The large deposits of fats and lipoids are in the abdomen, brain and spinal cord, and yellow marrow. The fat deposits in the abdomen and abdominal wall exceed in amount, quantitatively, the deposits in the marrow cavities of the long bones. The liberation of nitrogen in the abdomen and abdominal wall and the expansion of the gases within the stomach and intestinal tract result in terrific abdominal pains. When this condition develops, a recompression relieves the symptoms immediately, for the gases in the tissues are returned to a liquid state, and those in the intestinal tract are reduced in volume. With a slow redecompression, there is no return of the acute symptoms. If the period between the acute symptoms and the second compression is short, there is no serious circulatory damage. There is no injury to the osseous structures. When the period between the acute symptoms and recompression is prolonged, circulatory damage in soft and osseous tissues may result. It is difficult to evaluate a time factor. Barach,[13] in a discussion of the symptoms of oxygen deficiency, makes the following statement: "The extremities may be deprived of oxygen for periods of an hour and one-half by the complete closure of the arterial blood supply and thereafter may be used with completely normal function." While oxygen deficiency does not enter here, it is of interest to note that closure of the arterial supply to the extremities for one and one-half hours does not lead to death of the part. When circulatory damages do occur, if the area involved is small, it is probably of no consequence, particularly if it does not involve the brain and spinal cord. If the brain and spinal cord are involved, the changes may be permanent. If the period between the development of symptoms and recompression is unduly prolonged, the results may be disastrous. Workers recovering from the acute symptoms return to work within a day or two as if nothing had happened.

There is an established relationship between



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FIG. 5. (*a*) F. McG., male, aged 46. *Astrocytoma. Localized calcification in the upper end of the humerus.* Never worked under increased pressures.
(*b*) T. S., female, aged 30. *Progressive pseudohypertrophic muscular dystrophy.* Large irregular calcified focus in the diaphyseal and epiphyseal end of the humerus.
(*c*) W. W., male, aged 84. *General arteriosclerosis.* Irregular calcific density in the upper end of the shaft of the humerus. Never worked under increased pressure.
(*d*) S. J., male, aged 59. *Hemiplegia. Hereditary hemorrhagic telangiectasia.* Irregular calcific deposits in the upper end of the humerus. Never worked under increased pressure.
(*e*) A. H., male, aged 45. *Multiple cerebral fat emboli. Multiple fractures.* Irregular calcific deposit in lower end of shaft of femur. Never worked under increased pressure.
(*f*) D. D., male, aged 86. *Chronic productive type tuberculosis.* Large irregular calcific deposit in lower end of femur. Never worked under increased pressure.
(*g*) C. P., aged 44. Construction worker. Never worked under increased pressure.
(*h*) L. L., male, aged 57. *Arteriosclerotic heart disease. Mesenteric thrombosis. Peripheral vascular disease.* Never worked under compressed air.

an attack of caisson disease in the group that is being decompressed. For the most part this is true, and the majority of workers develop no symptoms. Some may develop acute symptoms within a comparatively short time after decompression, others within a few hours. Still others do not develop acute symptoms of caisson disease, but complain of aches about the joints either shortly after decompression or hours later. The symptoms in all instances are relieved by re-

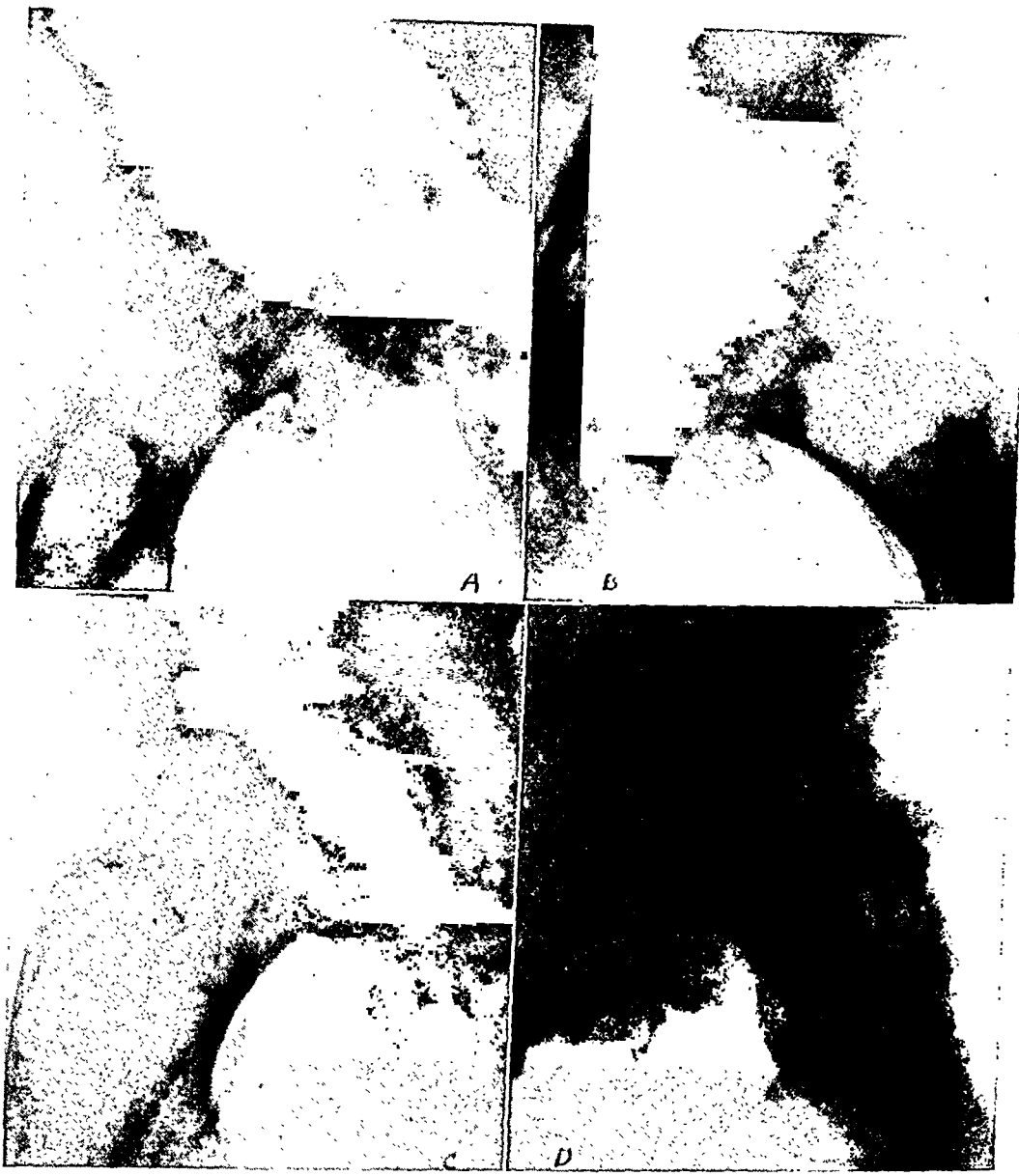


FIG. 4. (*a* and *b*) J. Z., male, aged 58. Arteriosclerotic and hypertensive cardiovascular disease. Caisson worker. Worked under increased pressures for two months, thirty-six years ago. Denies ever having had an attack of the bends. Hips show fibrocystic changes with areas of bone sclerosis, narrowing of the joint spaces, and secondary hypertrophic osteo-arthritic changes.
(*c*) W. H., male, aged 61. Varicose ulcers. Never worked under compressed air.
(*d*) J. McF., male, aged 71. Arteriosclerosis. Never worked under compressed air. Shows changes similar in character to those in illustrations (*a*) and (*b*).

the duration of exposure to increased pressure and the degree of pressure (30, 40, or 50 pounds) and a time factor necessary for decompression in order to avoid an attack of caisson disease. The rate of decompression following exposures is predetermined, and applied to all individuals alike. End[4] states: "Unfortunately, decompression according to standard tables will not always prevent compressed air illness . . . . ." Theoretically, the decompression should obviate

scribed above, in individuals who never worked under compressed air or were not subjected to rapid changes in atmospheric pressure, is lacking.

The opening paragraph of the second article on aseptic necrosis of bone by Kahlstrom, Burton, and Phemister[8] is:

"No record has been found in the literature of massive multiple infarcts of shafts and epiphyses of bones similar to those reported in part 1, occurring in patients who gave no history of having worked under compressed air. For that reason the following 3 cases are of interest." Kahlstrom,[9] in a recent article, reported 4 cases of bone infarcts in noncaisson workers. More recently, I have studied 50 individuals with bone infarcts and aseptic necrosis. Of these, 12 cases were occupational, and the remaining 38 had never been exposed to compressed air. Within the latter group were 11 women. The age range of the women was from 30 to 80, and in the male group the range was from 28 to 86.

Summary

Fifty patients were studied, 39 males and 11 females. Of the 39 males, 11 gave a history of continued occupational exposure, and one gave a history of a single exposure to compressed air. The others presented no occupational history.

Joint and shaft lesions of aseptic necrosis and bone infarcts were observed in 12 individuals who had been working under compressed air for varying periods of time. Some of these individuals were subjected to sudden changes of atmospheric pressure and developed symptoms of aero-embolism, or decompression illness, or bends. Others were not subjected to sudden changes in atmospheric pressure; of this group, some developed mild or subacute symptoms of decompression illness and others did not. The shaft and joint lesions do not develop immediately following decompression illness. Considerable time must elapse. The shaft lesions are usually asymptomatic and are usually accidently discovered. The joint lesions develop secondary arthritic changes and present an appearance like, and are similar to, a chronic hypertrophic osteo-arthritis. Shaft lesions are found in some patients and joint lesions in others. Some present both types of lesions.

The same type of lesions was observed in 38 individuals who never worked under compressed air and were not subjected to sudden or violent changes in atmospheric pressure.

The lesions in both groups present similar roentgen appearances and cannot be differentiated one from the other. In the caisson worker the causative factor is the inert gas, nitrogen, in bubble formation, as an embolus, as pressure, or both, interfering with the circulation to the part. In the noncaisson worker there is no apparent etiologic factor for the development of these lesions. The obstructing factor or factors to the circulation is unknown.

The bone lesions may be single; usually they are multiple, and often bilateral. Workers under compressed air presented extensive and multiple lesions more often than the others. In the noncaisson worker, where the lesion is single and not extensive, the reparative changes are usually greater.

Deep-sea divers and aviators may develop aero-embolism. There are no recorded evidences of bone changes in either naval or air personnel who have had aero-embolism.

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Discussion

Dr. William A. Walker, *New York City*—Dr. Taylor has so thoroughly covered the subject of aseptic bone necrosis, occurring in caisson disease, that I fear discussion will be mere repetition.

Dr. Taylor has reported a remarkably large number of cases of necrosis, particularly of intramedullary infarcts. These interesting lesions seem to have gone unnoticed prior to the reports of Phemister in 1939.

The patients whom I have seen at Bellevue Hospital, or in consultation, have all complained of hip-joint disability. The only epiphyses that I have seen involved were the hip and the shoulder. Pain and stiffness of the hip had developed because of deformity of the femoral head. Weight-bearing during the soft, necrotic stage must have been a major factor in causing the deformity. No flattening or deformity of involved humeral heads was seen.

Femoral head lesions were usually wedge-shaped and were found in the superior-lateral aspect of the head. These lesions in early cases were of uniformly increased density. Later cases showed areas of decreased density due to the reparative process and the substitution of new bone. Cases

compression. The inference must be that the acute symptoms on the one hand, and the mild, or subacute, symptoms on the other, are caused by the same agent—liberated nitrogen in a gaseous state (or air). It may be safe to assume than an acute attack of caisson disease is the result of a faulty decompression; either the decompression was hastened, or jumped completely. Delayed or subacute symptoms cannot be related to a faulty decompression.

There are a number of individuals who do develop the acute symptoms several hours after a proper and adequate decompression. In this group (sandhogs) it is rather difficult to explain why there should be delayed reaction to a physical change. Several factors may contribute to this situation. Nitrogen in solution has a narcotic effect. The threshold of irritability in this type of worker is probably high. These individuals usually partake of alcohol freely and are probably under its influence a good part of the time. A probability is that not until the release from the influences of the alcohol and the narcotic effect of the nitrogen do they become aware of their aches and pains. The clarification of their senses makes for an awareness or intensification of the symptoms.

There is also a group of individuals who, without an attack of caisson disease, either immediate or delayed, develop aches in and about one or more joints. In these individuals, one of two factors, or both, may be responsible for their aches. There may be a poor anastamosis of vessels in the ends of the bones, or the vessels may be of small caliber, or both. Either would be sufficient cause to considerably slow the circulation and prevent adequate decompression locally in the ends of bones. Following release from the decompression chamber, a quantity of nitrogen is trapped in areas where the circulation is slow and poor, where the anastamoses are inadequate. Musser[5] states: "When the pressure is reduced, the rate of desaturation is irregular, and those parts which acquire nitrogen slowly tend to retain it. At the end of the period of decompression, tissues such as fat may hold an amount of nitrogen which cannot be immediately dissolved in the blood. Bubbles may thus be formed either in the tissues or in the blood." This probably occurs in the ends of long bones. The gas is confined to a fixed space, and its volume increases, exerts pressure, and causes the ache or pain. Gas emboli or external pressure on vessels, or both, may follow one decompression, or possibly acquire accretions following repeated decompressions. When they persist, an ischemia and, ultimately, death to the part follow. The subsequent changes apparent on a roentgen film are described as bone infarcts or areas of aseptic necrosis. These do not develop immediately. A long time is necessary before osseous changes are manifest. When found in the shafts they may show reparative changes. When they are in the joint, various manifestations are possible: aseptic necrosis, infraction, separation, revascularization, weight-bearing, and softening, deformity, and secondary hypertrophic osteo-arthritic changes.

Because all caisson workers do not develop symptoms or reveal bone changes, the premise is that decompression is inadequate for the individual who does develop symptoms or bone changes, and not for the group. This being so, the cause of the trouble must lie within the individual. Admitting that there must be a circulatory change to account for the pathology, what is it that makes it possible? The loose designation of end arteries does not answer the question. There must be variations in each individual's circulatory tree, especially as it pertains to the skeleton. The variation must be one which slows or retards the circulation. The rate of flow must be decreased, and this can be accomplished by small caliber vessels, a poor anastamosis, or both.

It is also of interest to note that bone and joint changes have been found in individuals who worked under increased pressures with no history of accidents during their employment, with no record of a faulty decompression, and no history of an acute or subacute attack of caisson disease. The appearance of such a lesion in a person without an occupational history would defy explanation, particularly since shaft lesions are accidental findings and clinically give no symptoms. At the present time when an occupational history of a caisson worker is present, and records no attacks of the bends, the implication is that the bone lesions are causally related to the occupation. Actually, it is not an occupational lesion. If an individual has an adequate circulatory tree and is adequately decompressed, he should not develop any bone or joint changes. Individuals with an inadequate circulatory tree who work under increased pressures may develop bone and joint lesions with the ordinary so-called adequate decompression; even in the absence of an acute attack of caisson disease. Agglutination of red cells may play a part. These individuals are exposing themselves to an occupation which may be considered hazardous even under ideal conditions, including the so-called proper decompression. These lesions may not become manifest for many years; in some instances not for many years following the cessation of that particular occupation.

The explanation for the causative factors of bone and joint lesions, identical with those de-

THE USE OF STRAINED MEATS AS THE PROTEIN BASIS FOR MILK SUBSTITUTES IN THE TREATMENT OF MILK ALLERGY

JEROME GLASER, M.D., Rochester, New York

IT HAS been pointed out by Hill and Stuart[1] that the only food substances other than animal milk providing in suitable concentration all the amino acids specifically needed by an infant for continued normal nutrition are the animal meats and the soybean. Human breast milk would appear to be an ideal preparation for cow-milk-sensitive infants. I have been unable to find in the literature any proved instance in an infant of specific sensitivity to human breast milk. In no instance of such alleged sensitivity can the factor of foreign protein ingested by the mother and excreted in her breast milk be ruled out. The chief difficulties with the use of human breast milk are that it is not always readily available, is not always produced by mothers on the proper diet for a particular allergic infant, and that when it must be purchased it is usually quite expensive.

The introduction of a relatively inexpensive and universally available soybean milk by Hill and Stuart[1] in 1929 and the various soybean milks which have since been developed have been of tremendous assistance in the care of cow-milk-sensitive infants. However, an occasional infant is found who is also sensitive to soybean milk. These infants are now rare, but with the tremendous increase in the use of soybean as an article of diet and as a basis for plastics, sensitivity to soybean will surely become more and more common as time passes on. Other substitute milks have been brought forward which for the most part have as their basis carbohydrate foods.[2] The disadvantage of these preparations is that one is not certain that they contain all the amino acids in sufficient quantities for normal growth, even when fortified by the addition of the incomplete and occasionally anaphylactogenic protein, gelatin. This objection —while not great in the case of infants over 3 months old, at which time spoon feeding of semi-solid foods will take care of this deficiency—is great in the case of those infants whose allergic symptoms, principally colic, constipation, diarrhea and eczema, occur during the first few days or weeks of life. In these infants all the necessary constituents of the diet are best provided either in solution or in suspension in a suitable liquid substitute for milk. There have been many other substitutes for cow milk which have been used with varying success, such as almond and other nut milks, poppyseed milk, and hydrolized casein. Space does not permit further discussion of their relative merits.

The third class of foods, animal meat, has not been thoroughly studied as to suitability for use in milk substitutes. The use of animal meat in such substitutes is not new. Rowe[3] in 1931 published formulas using beef and lamb meat juice in milk substitutes. Cohen, Wallace, Mallory, and Rudolph[4] in 1933 described a milk substitute in which beef is used as the principal source of protein, with other substances added to round out the formula. My personal experience with this preparation has been unfavorable, but it has been successfully used by others and does have a useful place in the armentarium of the pediatric allergist. The formula contains several substances to which infants are easily sensitized and has the great disadvantage of rigidity. At the author's suggestion, Landau[5] in 1935 prepared and successfully used in the treatment of eczema a milk substitute whose basis was thoroughly dried beef muscle from which the fat had been extracted by ether and the material then ground into a fine powder and rubbed through a fine sieve, similar to the way in which beef is prepared in the powdered form for use in scratch testing. Although we were successful, we were forced to give up this particular method of making a milk substitute because of the time and labor involved. I did not experiment further with meat as the basis for substitute milk until Rowe[6] in 1941 mentioned homogenized lamb, beef, and liver and suggested their use in such formulas. These meats were prepared by Harold H. Clapp, Inc., of Rochester, New York, at the suggestion of Dr. Rowe and under the direction of Dr. Richard A. Reinecke of the research department of that company. These preparations will not be available commercially until after the war.

Space does not permit a complete discussion of the method of preparation of these meats. In brief, the process consists of cutting the meat into very fine particles which are forced through a perforated steel plate, the perforations of which are but 1.44 mm. (0.06 inch) in diameter. The finished product, although it consists of very

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Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 6, 1943.

From the Department of Pediatrics of the University of Rochester School of Medicine and Dentistry and the Pediatric Allergy Clinic of the Strong Memorial and Rochester Municipal Hospitals and the Allergy Clinic of the Genesee Hospital.

of many years' standing developed marked hypertrophic arthritic changes.

Dr. Taylor has mentioned involvement of cartilage. In three hips operated upon there was no evidence of death of cartilage. Inasmuch as hyaline cartilage derives nourishment from synovial fluid, its death would not necessarily follow that of underlying bone.

The shaft lesions were never a cause of complaint and it is doubtful that they cause pain or disability at any time, from their onset until healing has been completed, or destruction arrested. Those seen were most frequently found in the distal end of the femur and the proximal end of the tibia. The lesion was roughly conical in shape; the base at the level of the old epiphyseal line and the apex tapering off toward the center of the shaft. Their shape and location certainly suggest infarction by embolism of an end artery. The mottled appearance of these infarcts in old cases is due to partial resubstitution of old necrotic bone by new bone. A biopsy of one of these tibial infarcts showed necrotic bone debris, with scattered areas of new bone formation, as previously reported by Phemister *et al.*

The compensability of these bone lesions occurring in caisson disease has not as yet been decided. The long time period between onset of bone necrosis and the development of symptoms works against these claimants. They are vigorous men accustomed to hard and dangerous work. They suffer an almost complete loss of earning power when one or both hips become necrosed.

I wish to thank this section for the opportunity of discussing Dr. Taylor's most excellent paper.

THREE PERSONS OUT OF FOUR DON'T KNOW THEMSELVES

Do you know yourself?

If you can recognize your own hands when seen in a photograph, your own handwriting, the silhouette of your own profile, you know yourself better than three-fourths of the persons tested by Dr. Werner Wolff, chairman of the department of psychology at Bard College, Columbia University, in an eighteen-year study of personality.

If you can recognize your own voice, you are one person in ten.

This failure of individuals to recognize themselves Dr. Wolff attributed to man's unconscious unwillingness to remember or realize what he is like.

"Man's own image," he said, "is for him taboo. He forgets it. If we show it to him he reacts with emotion."

Yet, surprisingly enough, although men seldom have a chance to observe their own gait, they are able to recognize their walk with 100 per cent accuracy.

It occurred to Dr. Wolff that, by asking those persons who failed to recognize their own handwriting and other forms of expression to judge the character revealed there, it might be possible to get at a man's very private opinion of himself.

The interpretation made in this way of a man's own unrecognized expressions agrees very well, Dr. Wolff found, with those by other people about him.

But he is much more extreme in his judgments.

"If the majority say he is intelligent," Dr. Wolff explained, "he will describe himself as a genius. If the majority say he is unstable, he will describe himself as a neurotic character."

This study of personality is an attempt, Dr. Wolff explains, to develop a way of exploring the depth of personality, or the unconscious, by a method other than psychoanalysis. The objection to psychoanalysis, he says, is that it does not permit experimental proof—a drawback confessed by Prof. Freud himself.

An amusing personal incident suggested to Dr. Wolff his study of man's failure to recognize himself. It is described in his new book, *The Expression of Personality*, just published, in which he gives details of his long research.

"I went to a tailor to buy a suit," Dr. Wolff writes. "I opened the door of a dressing room but withdrew because a man was in the room. When I told this to the tailor he was astonished, because no one else was there. He went to the dressing room and it was empty, but in the background was a big mirror. The man in the dressing room had been myself, reflected by the mirror."—*Science News Letter*

TISSUE FROM CADAVERS USED TO HEAL CUT NERVES

A method of using tissue from cadavers to bridge severed nerves and restore their functions was described recently by three physicians.

The technic would be applicable in replacing shot-away portions of peripheral nerves to bring about a return of sensation and mobility in portions of limbs of wounded men.

Drs. Roland M. Klemme and Nilson R. de Rezende, of St. Louis, and Capt. R. Dean Woolsey, the Army Medical Corps, writing in the *J.A.M.A.* of three uses they made of the graft, said:

"The first patient already has good clinical result, with return of motor and sensory function. The second patient is already beginning to get return of function. The third case is too recent to make it possible to judge."

Acacia glue is used to join together the severed ends of the nerves, the physicians said, thus avoiding injury to the nerves that results from the use of sutures.

THE USE OF STRAINED MEATS AS THE PROTEIN BASIS FOR MILK SUBSTITUTES IN THE TREATMENT OF MILK ALLERGY

JEROME GLASER, M.D., Rochester, New York

IT HAS been pointed out by Hill and Stuart[1] that the only food substances other than animal milk providing in suitable concentration all the amino acids specifically needed by an infant for continued normal nutrition are the animal meats and the soybean. Human breast milk would appear to be an ideal preparation for cow-milk-sensitive infants. I have been unable to find in the literature any proved instance in an infant of specific sensitivity to human breast milk. In no instance of such alleged sensitivity can the factor of foreign protein ingested by the mother and excreted in her breast milk be ruled out. The chief difficulties with the use of human breast milk are that it is not always readily available, is not always produced by mothers on the proper diet for a particular allergic infant, and that when it must be purchased it is usually quite expensive.

The introduction of a relatively inexpensive and universally available soybean milk by Hill and Stuart[1] in 1929 and the various soybean milks which have since been developed have been of tremendous assistance in the care of cow-milk-sensitive infants. However, an occasional infant is found who is also sensitive to soybean milk. These infants are now rare, but with the tremendous increase in the use of soybean as an article of diet and as a basis for plastics, sensitivity to soybean will surely become more and more common as time passes on. Other substitute milks have been brought forward which for the most part have as their basis carbohydrate foods.[2] The disadvantage of these preparations is that one is not certain that they contain all the amino acids in sufficient quantities for normal growth, even when fortified by the addition of the incomplete and occasionally anaphylactogenic protein, gelatin. This objection —while not great in the case of infants over 3 months old, at which time spoon feeding of semi-solid foods will take care of this deficiency—is great in the case of those infants whose allergic symptoms, principally colic, constipation, diarrhea and eczema, occur during the first few days or weeks of life. In these infants all the necessary constituents of the diet are best provided either in solution or in suspension in a suitable liquid substitute for milk. There have been many other substitutes for cow milk which have been used with varying success, such as almond and other nut milks, poppyseed milk, and hydrolized casein. Space does not permit further discussion of their relative merits.

The third class of foods, animal meat, has not been thoroughly studied as to suitability for use in milk substitutes. The use of animal meat in such substitutes is not new. Rowe[3] in 1931 published formulas using beef and lamb meat juice in milk substitutes. Cohen, Wallace, Mallory, and Rudolph[4] in 1933 described a milk substitute in which beef is used as the principal source of protein, with other substances added to round out the formula. My personal experience with this preparation has been unfavorable, but it has been successfully used by others and does have a useful place in the armentarium of the pediatric allergist. The formula contains several substances to which infants are easily sensitized and has the great disadvantage of rigidity. At the author's suggestion, Landau[5] in 1935 prepared and successfully used in the treatment of eczema a milk substitute whose basis was thoroughly dried beef muscle from which the fat had been extracted by ether and the material then ground into a fine powder and rubbed through a fine sieve, similar to the way in which beef is prepared in the powdered form for use in scratch testing. Although we were successful, we were forced to give up this particular method of making a milk substitute because of the time and labor involved. I did not experiment further with meat as the basis for substitute milk until Rowe[6] in 1941 mentioned homogenized lamb, beef, and liver and suggested their use in such formulas. These meats were prepared by Harold H. Clapp, Inc., of Rochester, New York, at the suggestion of Dr. Rowe and under the direction of Dr. Richard A. Reinecke of the research department of that company. These preparations will not be available commercially until after the war.

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CHART 1.—STRAINED MEATS (ROWE) USED FOR COW MILK FORMULA SUBSTITUTES*

	Weight (Grams)	Measure	Percentage CHO	Grams			Grams			
				Protein	Fat	Calories	Ca	P	Fe	Cl as NaCl
Strained lamb P—12.23% Fe—11.17%	270	1 1/3 cups	.....	33	30	402	0.11	2.07	0.015	.....
Strained beef P—10.74% Fe—10.07%	307	1 1/4 cups	.....	33	30	402	..	..	..	.....
Sesame or corn oil	10	2 1/3 tsps.	.....	....	10	90	..	..	..	.....
Sugar (cane or beet)	30	2 1/3 tbsp.	30	....	..	120	..	..	..	.....
Potato starch flour, 83% CHO	24	2 1/3 tbsp.	20	....	..	80	..	..	..	.....
or Tapioca flour, 88% CHO	23	2 1/3 tbsp.	20	....	..	80	..	..	..	.....
Calcium carbonate, 40% Ca	3	1 tsp.	.....	....	..	...	1.20	..	..	.....
Sodium chloride	1.75	1/2 tsp.	.....	....	..	...	..	..	..	1.75
Water *qs* to 1,000 cc.	....	4 1/2 cups	.....	....	..	...	..	..	..	.....
Total for 1,000 cc. or or for 100 cc. (%)			50.0	33	40	692	1.31	2.07	0.015	1.75
			5	3.3	4.0	69.2	0.13	0.20	0.0015	0.175
The above formula compared with whole cow milk (Sherman & Bridges)			5	3.3	4.0	69	0.12	0.09	0.0002	0.175
Human milk (Bridges)			6.5	1.5	3.3	61.7	0.04	0.01	0.0001	0.058

* Method of Preparation: *All measurements are level, using standard* . . . . . Heat water to boiling in the top of a double boiler. Add sugar, salt, and calcium carbonate. . . . r to a paste in 1/3 cup of cold water and stir into the boiling water. Cook for 45 minut ally to prevent lumping. If necessary, add water to allow for evaporation. Add the st and reheat.— Albert H. Rowe, M.D. To be published.

minute particles of meat, is not, strictly speaking, homogeneous and is best, therefore, referred to as strained meat.

These meats are fine enough so that when undiluted with water at a temperature of 37.5 C. (100 F.), they will pass through a tube 3 mm. (0.125 inch) in diameter under a hydrostatic head of not more than 5 cm. (2 inches) of the product, provided that the product is stirred to prevent separation of the broth from the more solid portions. This means that they may be fed patients through a fairly small catheter, a fact which should be of considerable interest to dieticians who must devise for some patients a high protein intake diet with low bulk. The meats have also proved extremely useful in the feeding of normal infants.

The formula for the preparation of the milk substitute using the finely divided or strained meats as a base is shown in Chart 1, with which Dr. Rowe was kind enough to provide me. I chose lamb as the meat base rather than beef because it has been shown by Ratner and Gruehl[7] that milk can sensitize to bovine serum in experimental animals and it would be present in the beef muscle. The use of lamb obviates any controversy regarding this question.

By a study of Chart 1 it is evident that such a formula has a wide range of flexibility. Any available animal meat could be used as a basis. Horse meat should be particularly inexpensive and practical for this purpose. Instead of sesame oil, other oils such as corn, olive, etc., could be used. Instead of potato or tapioca flour, many other carbohydrates are available. One curious effect of the meat milk substitute is that in the course of four to six weeks' use the rubber nipples swell to twice their normal size. This is probably due to the action of the fat upon the rubber.

Case Report

The following case report is typical of a cow milk- and soybean-sensitive infant treated by means of the preparation under discussion.

Case J. H. L. (No. 3743). This boy was first seen at the office, at the age of 9 months, for treatment of eczema. This had started at the age of 3 months, at which time breast nursing, which had been only partial, was completely stopped. Various forms of cow milk had been employed without relief. He had never been on a milk-free diet. Experience had shown that he could tolerate neither tomato nor Pablum. Environmental control was instituted, and he was placed on a trial diet of soybean milk, taro flour, and crystalline ascorbic acid.

On this regimen, the skin became less oozy and some of the redness disappeared, but the improvement was not striking. Direct testing to gain some ideas as to what might be causing the trouble could not be done because of the universal involvement of the patient's skin. Passive transfer was employed, using both the mother and the father as recipients. All tests were negative. Instead of soybean milk, the boy was then put on the lamb meat milk substitute, using corn oil instead of sesame oil and taro flour (poyo meal) instead of potato or tapioca starch. Improvement was marked within twenty-four hours and was steadily progressive. When the skin had cleared satisfactorily, it was found by the method of progressive addition of foods that the following agreed with the patient: beet, carrot, chicken (capon), corn, molasses, oat meal, white potato, ryekrisp wafers, and cream of rye cereal. Vitamin C was supplied by means of crystalline ascorbic acid and Vitamin D by means of Drisdol. These foods were shown to disagree: cow milk, beef,

string bean, soybean, jello, and pears. Within eight weeks the boy's skin was in almost perfect condition.

In search of a complete protein food for newborn infants readily available and at least theoretically of a nonallergic nature, it occurred to me that such food might be made using the human red blood cells now discarded in such large amounts in the processing of plasma for emergency use. Red blood cells consist largely of hemoglobin which is deficient in several essential amino acids and it was my idea that these acids might be added in the process of manufacture of the milk substitute. This problem was suggested to Dr. Earl L. Burbidge, Associate Director of the Medical Research Division of Sharpe & Dohme, who, after considering the matter, reported[8] that this was probably impractical for the following reasons:

1. If unmodified hemoglobin were used, the product would have an undesirable color. Also, the stools would be dark and would give positive tests for blood. The presence of iron in the hemoglobin would offer no advantages, since iron in this form is not absorbed.

2. If only the globin were used, other disadvantages would be encountered. The yield of purified globin is low (about 20 per cent of the original globin). If crude globin were used, the disadvantages mentioned for hemoglobin (color, positive tests for occult blood) would hold. Moreover, hemoglobin and crude globin have bitter tastes. The isolation of globin takes large quantities of acetone, a priority item.

3. The mixture would probably have to be supplemented with several amino acids. These materials, especially threonine, are expensive.

4. If the cost of the product were figured in the usual manner, hemoglobin or globin would be an expensive source of globin for what should be a product of reasonable cost.

Human plasma or serum would probably be suitable for adaptation as protein bases for artificial milks, but at the present time the demands of war preclude their consideration for that purpose. Theoretically, the perfect meat base for an artificial milk would be human muscle tissue.

Summary and Conclusions

1. The use of finely divided particles of meat as a protein basis for milk substitutes in the manner described by Rowe is discussed.

2. A case report illustrative of the successful use of such a substitute is presented.

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Discussion

Dr. Kenneth S. Landauer, *Geneva, New York:*—It is a pleasure to discuss this paper of Dr. Glaser's and to congratulate him on the fine work he does. Solving the problems of many babies with atopic eczema requires diligent and meticulous work, the exercising of ingenuity, and the fundamental knowledge of nutrition, as Dr. Glaser has so well demonstrated. The use of soybean in milk substitutes for the milk-sensitive baby has been of great assistance, particularly in those who are sensitive to casein as well as to lactalbumin. Lactalbumin is heat labile and species specific, and many infants sensitive to this alone may be fed heat-treated cow's milk or goat's milk. Casein, however, is not easily hydrolyzed, and in addition in most mammalian milks the casein is antigenically similar so that use of a milk substitute becomes necessary in many cases of infantile eczema where sensitivity to this protein exists. Dr. Glaser has mentioned soybean milk as described by Hill and Stuart and commercially available as Sobee and Mull-Soy. Nutramigel (amino acids from hydrolyzed casein) is a preparation I have used with some success in milk-sensitive babies. For the past two years I have used in conjunction with this, large doses of vitamin B complex (Smaco) containing larger amounts of biotin than in the average preparation. Also, I have added a source of unsaturated fatty acid to the diet of eczematous infants, as suggested by McQuarrie's clinic, with the hope of improvement in the more refractory cases. I have thought these measures to be of some help—in particular the B complex fortified with biotin. This I give in one-half ounce doses for a week, with gradual reduction thenceforth to a maintenance dose of one teaspoon once a day.

This new meat-milk is going to find increased usefulness in the near future as soybean finds its way into more and more food preparations. There are some 250 uses described of it now, and many more cases of sensitivity are certain to occur. Lamb seems a good choice as this meat is least commonly a troublesome allergen. Beef, pork, and horse meat are more highly allergenic. It is known in Holland and Russia where mare's milk is widely used for infants and where horse meat is a staple part of the diet for the older group, that horse asthma is more common. However, contact with the horse is probably greater per person in these countries also. I should like to ask Dr. Glaser if the use of horse meat and lamb (because of the serum proteins present) is not likely to induce allergy to horse serum and perhaps to the danders.

I wish to thank Dr. Glaser again for his fine report on this new way of feeding allergic babies.

Dr. Glaser—I greatly appreciate Dr. Landauer's kind remarks. I have never had any cases of eczema in which I was convinced that any parts of the vitamin B complex or unsaturated fatty acids helped in any way. The question as to whether or not the use of meat milks may sensitize to the serum or dander of the specific animal is interesting and important. Probably there is at least a chance of sensitizing to serum since some of the serum proteins are always contained in the muscle, and possibly to the danders since a cross relationship is known to exist between sensitivity to animal serums and danders.

However, I do not believe that this would prove very serious. The reason is the observation of Wells and Osborne [J. Infect. Dis. 29: 200 (1921)] that animals fed with milk are not good subjects on which to try anaphylactic experiments with milk as they may have acquired more or less of an immunity. Something similar might be expected to apply in the case of infants fed the artificial meat milks.

CHRISTMAS SEAL RADIO PROGRAMS

A series of radio programs is being given over New York stations under the joint auspices of the New York Tuberculosis and Health Association, Inc., and the Medical Information Bureau of the New York Academy of Medicine. The programs started on November 19 and will continue through December 25.

On December 15 over Station WINS "By-Product of War," a dramatization of tuberculosis news behind the headlines, will be broadcast by well-known radio stars at 7:30 A.M. At 1:15 P.M. on December 16 Dr. Clarence C. Stoughton, president of Wagner College, will speak on the subject, "The Message of the Christmas Seal" on Station WNYC.

On December 17 two programs will be on the air for this cause. Over Station WNYC at 11:45 A.M. Miss Leah M. Blaisdell, R.N., acting director of the Henry Street Visiting Nurse Service, will discuss "The Role of the Nurse." At 10:45 P.M. Station WEVD will broadcast "Goodwill Toward Men," an electrically transcribed musical show of Christmas carols featuring the Southernaires, with the Lyn Murray Choir. Milton Cross is the narrator.

At 1:15 P.M. on December 18 on WMCA Dr. Jerome S. Peterson, District Health Officer of the New York City Department of Health, will give a talk entitled "The Main Facts in Tuberculosis." "Tuberculosis Among Workers" will be the topic of Dr. Leo Price, director of the Union Heath Center, at 11:45 A.M., December 20, over Station WNYC. At 4 o'clock of the same day Dr. Abraham Tamis, of the Bronx Tuberculosis and Health Committee, will speak over WBNX on "Tuberculosis in the Pregnant Woman."

On December 21, at 11:30 P.M., Station WOV will give a second broadcast of the musical show "Goodwill Toward Men."

At 1:15 P.M. on December 23, Miss Bosse B. Randle, R.N., chairman of the Nursing and Social Service Section of the Tuberculosis Sanatorium Conference of Metropolitan New York, will give a talk entitled "Adventures in Controlling Tuberculosis," on Station WNYC. "A Thought for Tomorrow" is the subject of a broadcast by Mr. Frank Kiernan, Executive Director of the New York Tuberculosis and Health Association, to be broadcast by WNYC at 11:45 A.M., December 24.

On Christmas Day the musical program "Goodwill Toward Men" will again be broadcast at 1:15 P.M. by Station WMCA.

Throughout the campaign spot announcements will be made on all stations. A special series of four programs on WBNX was sponsored by the Bronx Tuberculosis and Health Committee in November and early December.

LEMON PEEL CHEMICAL STUDIED AS MEDICAL AID

A chemical from lemon peel may make the fast treatment of syphilis safer and more effective, it appears from experiments reported by Dr. David H. Goldstein, Dr. Abraham Stolman, and Dr. Arthur E. Goldfarb, of New York University College of Medicine and Bellevue hospital.

When syphilis treatment is reduced to days instead of months or years, very large doses of arsenicals must be given, which not all patients can stand.

The most serious poisonous effect is brain damage, which occurs in a little more than one out of every hundred patients treated with mapharsen and kills about three in every thousand, the investigators point out.

Symptoms range from headache and dizziness to convulsions and death. The commonest finding in the injured brain is damage to the capillaries. This, the scientists point out, suggests that the fast syphilis treatment, when it causes damage, does so by making the walls of the capillaries more permeable.

Vitamin P from lemon juice is supposed to prevent capillary permeability. Following this lead, lemon juice was tried to offset the capillary injury done by mapharsen. It was too effective. Meanwhile other scientists had isolated a chemical from lemon peel which appeared to decrease fragility of the capillaries. This chemical is a chalcone.

The New York investigators used a methyl chalcone developed by the Research Department of the California Fruit Growers Exchange. When they gave this to rabbits along with mapharsen, 90 per cent of the animals survived, whereas only 57 per cent survived the same doses of mapharsen alone.

The chalcone, they found, did not lessen the ability of mapharsen to kill the syphilis spirochetes. Test tube experiments show that the chalcone itself may have some killing effect on the spirochetes.

TUMORS OF THE NOSE AND NASOPHARYNX

ANDREW A. EGGSTON, M.D., New York City

THE nose and throat offer a fertile field for the study of neoplastic diseases. Practically every variety of tumor may at times be encountered in this region. Many of them baffle proper diagnosis and classification.

Any type of tissue may at times manifest renewed and unconventional growth, and a tumor results therefrom. As there are many varieties of tissue involved in the histogenesis and embryology of the nasopharyngeal and laryngeal regions, it logically follows that an unlimited variety of primary tumors may arise in these structures.

One must review, but not factually, many seeming explanations of tumor growths. Repeated injuries and irritations to the tissues have a relationship to tumor development. Roentgen-ray and radium burns have been followed by tumor development. At present, a specific bacterial basis of any tumor seems the least plausible causative factor. Cohnheim's theory is, of course, familiar to all students of medicine. It is claimed that the persistent embryonic tissue cells in latent form intermingle with the normal developing cells. These later receive a stimulus to growth far in excess of the normal, and, therefore, continue to reproduce lawlessly and out of bounds of all proportions to the normal.

There is convincing evidence that in some benign tumors cell rests may be responsible for the subsequent development of tumors or other abnormalities. There is at present no confirmation of the theory that malignant tumors spring from latent cell rests.

Chemical irritant substances offer at present the most plausible explanation of the instigation of malignant tumors. In 1775, Dr. Percival Pott[1] discovered that the soot wart of chimney sweeps was known to develop into malignant skin cancers. In 1916, Yamagiwa and Ichikawa[2] produced cancer in rabbits' ears by the repeated application of coal tar. Recently the carcinogenic chemicals have been isolated from tar and subjected to extensive experimental investigation which has established, upon a rather definite scientific basis, a chemical causative factor in cancer. In 1935, Barry, Cook, and others[3] systematically produced carcinogenic chemicals. At present the chemicals are numerous and belong to the hydrocarbon group composed of multiple benzene rings. Of special interest are 10-methyl-1,2-benzanthracene, 9,10-dimethyl-1,2-benzanthracene, and methylcholanthracene.[4]

Peculiarly enough these chemicals are quite similar to cholesterol, germ oils, and certain sex hormones. They also occur in charred meat fats. Certainly the chemical causative approach is most stimulating, and it may be productive of the development of a neutralizing chemical or other factor in the prevention and treatment of cancer.

Malignant tumors of the upper respiratory tract have all the characteristics of tumors that are found elsewhere in the body. The sarcomas metastasize chiefly through the blood stream and the carcinomas through the lymphatic system. They undergo all the degenerative changes, such as myxoid, colloid, hydropic, fatty degeneration, and necrosis. The reader is referred to the excellent publications of Ewing,[5,6] New,[7,8] and Stout[9,10] for references and complete discussion of tumors in the upper respiratory regions.

There are many borderline tumors in which it is impossible histologically to classify the growth. One cannot tell by histologic observations what the physiology of the cell is or what its function is or may be. Thus, histologically there are definite limitations in making a diagnosis of malignancy or benignity of a borderline tumor. Only tumors primarily of nose and nasopharangeal origin will be discussed. However, one must remember that malignancy of other regions may metastasize to these structures.

Fibromas or fibrous connective-tissue tumors are found in the nose, tonsil, nasopharynx, larynx, and cheek. They are usually sharply differentiated, or polypoid, in shape. At times they may be diffuse and infiltrative in character, particularly in the pharynx. There are many gradations between these two types. The hard fibromas are composed of dense strands of fibrous tissue, rich in collagen. At times they may become edematous and swell to tremendous sizes and may present through one or both nostrils or entirely fill the nasopharynx. In both instances obstruction to the upper air passages results.

The softer types of fibromas in the nose are frequently difficult to distinguish from the polypoid inflammatory hypertrophies of the nasal or sinus mucosa. This fact explains why practically all polyps of the nose were formerly called fibromas. Polyps of the nose are practically always due to chronic inflammatory changes. Pure fibroma, in my experience, is relatively rare in the nose

Read at the Annual Meeting of the Medical Society of the State of New York, Buffalo, May 6, 1943.

but more common in the nasopharynx, where the juvenile type of fibroma is found.

The fibroblastic types are difficult at times to distinguish from a fibrosarcoma, or an undifferentiated angiofibroma. As a matter of fact, most fibromas of the nose or nasal sinuses are extremely vascular, with numerous lymph or blood vessels and are at times better called angiofibromas. Sometimes the vessels are the most characteristic features, and then the tumor is a fibroangioma. The fibromas of the nose and larynx are benign, but it is difficult to remove them entirely, particularly if they are of the infiltrative type. Thus they have a tendency to recur and may ultimately become sarcomatous.

Fibromas may infiltrate the bony walls of the maxilla, turbinates, or ethmoid bones. Fibromas are commonly a part of an osteoma, chondroma, or osteogenic sarcoma. Neurofibromas also are found along the nerve fibers of the nose. Located in the nasal upper respiratory tract there may be some neurofibromas of the kind found in von Recklinghausen's disease. Schwannomas or neuromas and plexiform neuromas also occur in this region and are frequently mistaken for fibromata.[10]

The neoplasm known as juvenile fibroma is a rare growth of the nasopharynx seen usually in adolescents. It is entirely distinct from fibrous polyps of the nose, being firm in texture and in some instances almost cartilaginous. Because its base is broad and the growth is frequently advanced to the stage of ulceration before it comes under medical attention, its exact point of origin is often difficult to recognize. It is variously thought to take its origin from the undersurface of the sphenoid bone near or at the basilar process of the occiput, and occasionally from the sphenoid sinus, the sphenopalatine fossa, or even from the two highest cervical vertebrae. But the site most often observed is the posterior osseous wall of the nasopharynx proper, its exact point of origin being the periosteum of the pharyngeal wall.

Although technically "nonmalignant," this neoplasm can cause death by rapid invasion of the surrounding structures, including the cranial vault. Spontaneous regression sometimes occurs about the twentieth year, which suggests that some endocrine factor may influence the growth.

A case of juvenile fibroma was seen in a boy of 15. The tumor presented in the nasopharynx and caused an obstruction, for it pressed down upon the soft palate, interfering with the function of the hard palate and filling all the upper portion of the nasopharynx. As is characteristic of these juvenile fibromas, this growth contained many arteries and thick-walled venous spaces engorged with blood. When ulceration occurred there was frequent, profuse hemorrhage, which necessitated repeated blood transfusions. An incision made into the tumor produced a continuous arterial type of bleeding. After the patient had received eighteen blood transfusions, it was considered that the risk of operation was no greater than that of letting the tumor continue to ulcerate *in situ* and bleed. Radium had been tried in vain. The growth was reached by splitting both soft and hard palate, and, although bleeding was profuse, the patient recovered. There has been no recurrence during ten years' observation.

Osteoma.—Bony tumors are relatively common in the nose and sinuses. Their definite outline is readily detected in a roentgenogram. Although they are of slow growth, they may progress into the orbit, maxillary antrum, or ethmoid sinus. Because they are definitely limited in size, these growths seldom produce distressing symptoms; but if they occlude a sinus opening and interfere with nasal drainage, they may cause trouble, especially if the sinus becomes infected. Their removal is a comparatively simple matter except in those cases in which a flat-based osteoma is attached over a large area of bone. Some osteomas are sessile, but the majority bulge out from the walls of the sinus, being attached only by a slender pedicle. At times this pedicle atrophies so that the growth lies free in the sinus.

These tumors have a hardness that is usually greater than that of the parent bone, and their surface is often rough and covered with lobulations and excrescences. On section, however, they will prove to be composed of a mixture of lamellated and cancellous bone, which may appear quite like normal spongy bone, usually containing fibrous fatty tissue although myeloid tissue is occasionally present. Osteomas are frequently mixed tumors, such as osteofibromas or osteochondromas.

Osteoid osteoma, a benign tumor, consists of osteoid and atypical bone which, without obvious cause, has displaced the bone which would normally occupy the region; it does not recur after thorough surgical removal. However, in the nasal bones this is very difficult to accomplish, and two cases under our studies have suffered recurrence.

As, histologically, the sections strongly suggested giant-cell osteosarcoma, it is my opinion that many of these growths border closely on malignancy.

Chondroma.—I have seen but one case of pure endochondroma of the nasal bones. This was located in the ethmoids and involved the other sinuses bilaterally. The patient was a woman 52 years of age. Histologically the tumor was

composed of pure hyaline cartilage, although the cells and lacunae were somewhat irregular in size and shape. After three recurrences, it was decided that roentgenotherapy should be tried. There was recurrence after a period of retardation by radiation, and at the fourth attempt at radical surgery the patient succumbed.

Cartilage tumors, are, in general, of the mixed type, usually osteochondromas or fibrochondromas. These tumors are relatively common in the nose and nasopharynx. Incidentally, I have seen two large chondromas of the thyroid and cricoid cartilage that were treated by laryngectomy.

Chordoma.—Chordoma of the nose is one of a group of tumors arising from the vestigial remains found along the course of the so-called notochord, from the sacrolumbar region to the skull. When the growth appears in the nasopharynx, its point of origin is usually the junction of the sphenoid and occipital bones. It may attain such a size as to fill the vault of the nose completely and even project from the nostril or into the cranial cavity.

Myxoma.—In 1863, Virchow described myxomas and their relation to degenerative changes of lipomas, but stated that myxomas are rather rare in adults. Myxoid degenerative changes of fibrous tissue are frequently found in the benign and malignant tumors of the nose, nasopharynx, and larynx. Many books and publications still erroneously refer to polyps as myxomatous tumors. As a matter of fact, no myxoid tissues occur histologically in the adult; this type of tissue represents a degenerative process, usually of fibrous tissue.

Chiari, in 1887, came to the conclusion that nasal polyps were only a serous infiltration and hypertrophy of the nasal mucosa. In papers by Hajek, Wright, Cordes, and many others there is satisfactory proof that nasal polyps are of inflammatory origin and not of a tumorous nature.

Angioma.—Angiomas are tumors in which blood or lymph vessels play a dominant role. If blood vessels predominate, the tumor is a hemangioma; while it is a lymphangioma if lymph vessels constitute an important part of the mass. The simplest vessel hyperplasia which simulates an angioma is telangiectasis, which is seen in the skin of the nose of persons exposed to wind and sand or following repeated infections. Vascular nevi occur frequently on the skin of the face or nose or even within the vestibule or on the septum. The writer observed one case where the nevus involved the soft palate and lateral walls of the pharynx.

Simple hypertrophic angiomas are commonly found upon the hard palate, tongue, septum, or choanae of the nose, and less frequently in the nasopharynx, pharynx, or larynx. In these, the vessels are small, with thick walls and considerable endothelial and fibroblastic hyperplasia in the vessels or lumina. Sometimes the cells have a perivascular mantelling structure, and are undifferentiated as to their endothelial or fibroblastic nature. Some of these cells have been described by Zimmerman as pericytes and these tumors are called hemangiopericytomas. These tumors may be sessile, pedunculated, or lobulated. Cavernous hemangiomas may occur in the nasal structures and more commonly upon the hard or soft palate, and even the mucosa of the nasopharynx may be involved. Angiomas of the larynx are rare; in many instances the varicosity of a simple laryngeal polyp may be erroneously called an angioma.

The lymphangioma may be simple, telangiectatic, cavernous, or cystic. The simple capillary lymphangioma is frequently hard to distinguish from capillary hemangioma of the blood vessels. Other forms of lymphangioma are macroglossia, macrocheilia, and some forms of elephantiases and hygroma cysticum colli. Glomus tumors are rare in the nose and nasopharynx.

Endothelioma.—An endothelioma is defined by Ewing as a tumor "believed to be derived from the lining cells of blood vessels, lymph[5] vessels and spaces, subdural spaces and serous cavities." The classification of tumors which take their rise from endothelium or tissues of endothelial origin presents many difficulties to the pathologist, chiefly because the earliest stages of growth are seldom or never observed.

The presumably endothelial tumors that are seen in the nose and throat are most often classified as "mixed tumors of the salivary-gland type." In Lewis and Geschickter's series of 393 endothelial tumors, 7 "so-called endotheliomas of the soft parts" were found in the nasal cavity and one in the maxillary antrum. In Ringertz's series of 27 cases, "17 were mainly confined to the nasal and paranasal system."[11]

The "mixed" tumor, as its name indicates, partakes of the character of numerous tissues. While but few of these have been proved to be endothelioma, many of them—especially in the period before intensive study of neoplastic material produced extended and minute classification—were classed as such, introducing uncertainty and confusion into the nomenclature. It should, therefore, be borne in mind that many growths labeled "endothelioma" might better be classed as mixed tumors and that all of them are on the borderline between the benign and the malignant, with a tendency toward malignancy, so that all of them should be looked upon with suspicion, and given a guarded prognosis.

Tumors of Lymphoid Structure.—In evaluating the lymphoid tissues and tumors thereof, one meets with an unusual problem in the nasopharyngeal region. This region contains normally many areas of lymphoid tissue, the normal quantity of which varies greatly in individuals.

Also there is a great disagreement as to what roles are played by chronic infective processes in a hyperplastic process in these structures.

Lymphoma.—Some authors deny the existence of a lymphoma, considering it a hyperplastic lymphoid mass of an inflammatory nature. Implantation of lymphoid follicles in places where they are not supposed to exist is regarded as a lymphoma by others. There have been instances in my experience where lymphoid tissue of a neoplastic nature has been found in unusual areas of the eye, nose, and throat. The architecture of these lymphoid masses is not that of a lymph node or of an inflammatory hyperplastic lymph node. In a lymphoma, there are usually a few follicles which are poorly defined. The lymphoid pulp is densely and irregularly crowded with a uniform type of lymphocyte. The cells do not appear in follicles or lymph cords and in all submalignant instances they are well supplied with dense chromatic nuclei. These tumors readily respond to radiation.

Plasmocytoma.—This tumor is composed chiefly of plasma cells. Plasma cells are probably specific, differentiated lymphocytes, which vary in size and are spherical or ovoid, with a nucleus situated at one pole. The nucleus has a characteristic, spokelike arrangement of the chromatin fibers. Like lymphoma, under certain conditions the plasmocytoma infiltrates rapidly and becomes malignant, producing a tumor of the lymphosarcomatous type. Plasmocytomas are seen in the nose, turbinates, and nasopharynx, where they appear as infiltrative or pedunculated growths covered with reddish mucosa. In the present writer's records, a plasmocytoma involving the vocal cords recently necessitated a laryngectomy because infiltration was so extensive that it had fibrosed and obstructed the larynx. Ultimately, in spite of radiation, the patient died.

Lymphosarcoma.—In addition to lymphomas, plasmocytomas, and follicular lymphoblastomas, by far the most common and equally the most distinctly malignant sarcoma of the upper respiratory tract is the lymphosarcoma. These tumors constitute a proliferative process originating in the lymphoid tissue of Waldeyer's ring or of the mucous membrane of the nose—in general, where lymphoid tissue exists.

Lymphosarcoma falls into three types: (1) small round-cell type—lymphoblastic sarcoma; (2) large round-cell type—reticular or germinal center type; and (3) an undifferentiated type of cell simulating the epithelial cell on the one hand and the mesodermal reticulolymphoid type of cell on the other, ambiguously called lymphoepithelioma and, by some, transitional celled tumors, Regaud[12] or Schmincke tumors.[13]

The small, round lymphocytic sarcomas are identical with the tumors that were formerly designated as small, round-celled sarcoma. A number of these cases have been observed in which the primary tumor was in the nose and nasopharynx. These cases run a variable clinical course, as illustrated by the following examples:

A man with the growth upon the turbinates has survived twelve years following radiation. In this time he has had three recurrences and has had one orbit exenterated.

Another patient, a middle-aged woman, died within one year in spite of intensive radiation.

I recall another patient, a man, aged 54, who was in perfect health. He died within three months from such a mass in the nasopharyngeal region.

Recently a man aged 65 presented a large mass in the oral cavity and pharynx, involving the soft palate and both sides and the posterior wall of the nasopharynx and pharynx. The involvement was so extreme that the patient died of asphyxia. Necropsy revealed a small, round-celled sarcoma infiltrating the structures. This growth was of six months' duration. The most usual location is in the nasopharyngeal lymphoid structures.

Grossly, the tumors are usually firm, vascular, well-defined, smooth, and of a grayish-white appearance. They are incised with a sense of firmness and resistance.

Microscopically, the cells are small and round, with typical lymphocytic characteristics, but they show nucleoli and many mitotic figures. The cells form no definite follicles or histologic architecture. They infiltrate the adjacent structures. They should be differentiated from lymphatic leukemia by the blood count.

The reticulated-celled lymphosarcomas are more difficult to understand histologically. They appear to arise from the vesicular cells of the germinal centers of the lymph follicles and are, therefore, composed of the stem type of lymphoid cell. On the other hand, they have been thought to arise from the histiocytes of the reticulum of lymphoid structures. Be this as it may, they are highly malignant tumors, more so than the small-celled lymphoid sarcoma. In the past the reticulum sarcoma has frequently been called the large, round-celled sarcoma. These sarcomas may have their origin in the nose, nasal septum, or accessory sinuses, but more commonly in the lymphoid structures of the nasopharynx and pharynx and rarely in the larynx or esophagus.

They grow rapidly, infiltrate, and destroy the surrounding structures. Grossly, they appear vascular and are rather soft, translucent, and succulent.

Histologically, there is a diffuse cellular mass of large round cells with intercellular fibrillae. The chromatin of the nuclei is vesiculated, which makes the nuclei indistinct and pale. Many atypical nuclei and mitotic forms appear. There are numerous and prominent nucleoli present. There is irregularity of staining reactions, and at times the cells form diffuse syncytial protoplasmic windrows or sheaths of cells.

The primary tumor may become necrotic, and ulceration of the surface appears. Before the ulceration, the primary tumor may be very small and may frequently be overlooked in a routine examination. This has occurred, to the chagrin of the rhinologist, the true diagnosis being made only after metastasis has taken place in the glands of the neck or elsewhere.

Transitional-Celled Tumors or Lymphoepitheliomas.—These tumors have received thorough consideration by Schmincke,[13] Regaud,[12] Ewing,[5,6] and others. Tumors of this kind are most common in the mucous membrane of the nose, nasopharynx, and pharynx, and in those intestinal regions in which epithelium is intimately associated with lymphoid tissue. The truly transitional-celled tumors refer to a basal cell type of epithelium where there is an imperceptible protoplasmic transition from the basal epithelial cells to the reticulum cells of lymphoid tissues. Such a close relationship exists normally in the crypts of the tonsils, adenoids, or isolated follicles of the nasopharynx.

These tumors are composed of rather large, round, vesicular, nucleated cells whose protoplasm has a poor outline and forms a syncytial type of tissue. The cells seem to coalesce, and they have no intercellular bridges or fibrillae. In this way they simulate epithelial cells.

In these tumors, as with reticulocytic tumors, the primary growth frequently remains obscure and undiscovered in the upper respiratory tract. Thus the diagnosis unfortunately is often made only after rather prominent metastasis in the cervical nodes appears. These tumors, when in the nasopharynx, may infiltrate diffusely all the structures at the base of the skull, involving one cranial nerve after another and producing various neurologic syndromes.

As described by Schmincke,[13] the growth may be "sarcomatous" in character. Often the appearance of epithelial columns disappears altogether, and loosely packed masses of cells of varied shapes—oval, round, or polygonal—take their places.

The stroma of these growths is very delicate, and they are extremely cellular. Lymphoepitheliomas are not vascular and do not show necrosis and other degenerative changes as commonly observed in other classes of malignant neoplasia.

It is my opinion that the transitional tumors and lymphoepitheliomas of the upper respiratory tract are so poorly differentiated that many of these types of tumors and others are grouped under sarcomas or carcinomas, rendering comparative morbidity statistics unreliable. Moreover, tumors of a great variety—entirely uncorrelated histologically—have been included in this category. Additional differentiation of these complicated malignant tumors of the nose and throat is highly desirable, and as more are carefully classified, we hope a clearer interpretation of the cell types will follow. These tumors are raysensitive for a while but all succumb in from one to three years.

In my experience, sarcoma in the structures of the nose and sinuses has been much less frequently encountered than carcinoma. This is true with the exception of lymphosarcoma. In our service, we have seen a few cases of osteogenic sarcomas, a plasmocytic sarcoma, and a few instances of fibrosarcoma. Also a few unclassified sarcomas and angiofibrosarcomas have been observed.

According to my experience, the histologic diagnosis of sarcoma is not so well defined as it is in the epithelial tumors, and so there may be some of the sarcomas that were benign tumors or that belong to the epithelial groups.

Fibrosarcoma is the malignant development of the fibroblastic cells. The cells are pleomorphic or spindle cells and form a bulky, sessile tumor, arising most often in the maxillary or ethmoid sinuses. At times the tumors are polypoid. They usually arise in the periosteum of the nasal bones and rapidly destroy all the surrounding tissues. The nasal septum, lateral nasal wall, or the walls of the maxillary and ethmoid sinuses are the most frequent sites. Ewing[5] has stated that true sarcoma of the nasal cavity and the antrum of Highmore is always either angiosarcoma or myxosarcoma. My experience tends to support this statement. I have seen cases of angiofibrosarcomas which did not respond to radiation or surgery and in which death resulted from extensive local destruction and metastasis. Ringertz states that malignant angiomas are excessively rare and that it is probable that most of the reported cases were actually tumors of the salivary gland type. My experience is in disagreement with this observation.

In rare cases these sarcomas are described as polyp-like, stalked formations. They are

thought to spring from the mucoperiosteum of the nasal and paranasal system, and also from the periosteum on the outer surface of the maxillae. A large number of described cases appear to have arisen from the septum and in other cases from the lateral wall, antrum, or ethmoid bone. In a few cases, the tumor is situated in the frontal sinus or the sphenoid sinus. Often the site of origin was impossible to determine, so widely had the growth extended into the surrounding tissues.

In this writer's experience, a few osteogenic sarcomas have been found in the nose and the nasal sinuses. During the past years—after a long interval wherein not a single one was recorded—we have seen three in the nasal sinuses. Osteogenic sarcomas are those malignant tumors which have their origin in tissue which normally produces bone, probably not often in the preformed bone itself.

Tumors Originating in the Bone Marrow.—In my experience, no definite case of myeloma has appeared, although rare cases have been reported, involving tissues of the nose and nasal sinuses. A growth described by James Ewing in 1922, which he termed endothelial myeloma, might perhaps have been discussed under endothelial growths. But since it is now universally known as Ewing's sarcoma, its description finds a place here. Peculiarly a disease of childhood, only a few cases of Ewing's sarcoma in the nose and throat have been recorded, and these were in all probability (even though the primary lesion remained undetected) secondary deposits to the head from one of the long bones.

True sarcomas of the nares and antrum, says Ewing,[5] are chiefly angiosarcomas and myxosarcomas arising from the mucosa. Angiofibrosarcoma of the upper respiratory region is not an uncommon type of sarcoma in my experience.

Myxosarcoma, however, is a diagnosis that is rarely justified in connection with neoplasms of this region.

Melanomas appear as pigmented tumors about the nose, lip, or face, rarely in the mouth, hard palate, or nasopharynx; but they are commonly found in the choroid coat of the eye. I have seen the nasal sinuses and the nose secondarily invaded by a melanosarcoma of ophthalmic origin and one from a metastasis of a generalized melanomasarcomatosis.

Nerve Tissue Tumors.—A few cases of neurinoma or schwannomata perineurial fibroblastoma of the nasal cavity are on record. In one such case, the growth was as large as an orange and was well demarcated. It filled the maxillary antrum, eroding the bone. A variety of neurinoma was recently seen on the present writer's service. The tumor was located in the ethmoid and sphenoid sinuses and had involved the orbit.

Histologically, this growth resembles neurofibromatosis in that it consists of nerve fibers and connective tissue, with rosette formation and palisading of the cells, these cells being arranged about the fibers so as to provide the chief element in the tumor.

Ganglioneuromas arise in the vicinity of the schneiderian membrane and are sometimes described as gliomas. Nasal gliomas are thought to arise from fetal remnants of the central nervous system.[9,11] I wish here to mention a small, oval-shaped tumor of neuroglia tissue removed from the base of the nose of a 3-month-old Italian infant. The growth was about the size of a lima bean and proved on section to be composed of fibrous and neuroglia tissue with a few nerve cells. The tumor was successfully removed and has not recurred. In similar growths, ganglion cells are often seen, so that they should be designated as ganglioneuroma or neurocytoma.

Papilloma of the nose and accessory sinuses is not uncommon. It is usually a firm growth sometimes found to be composed of reduplicated layers of columnar or squamous epithelium. The more common squamous cell growth originating from squamous cell epithelium is seen in the vestibule of the nose and septum.

Cylindrical-Cell Papilloma.—These tumors are usually of inflammatory origin and represent really a chronic sinusitis; however, true multiple papillomas do occur in the nose and the sinuses.

The growth of these neoplasms has been termed by Ringertz as "inverted," because unlike typical papillomas as seen in the throat and elsewhere which proliferate outward from a surface dragging with it stalks of stroma, the nasal growth's epithelium proliferates inward, forcing the stroma apart.

Papillomas of the pharyngeal and nasopharyngeal mucosa, as well as those of the mucosa of the hard and soft palates, are not infrequently encountered. They are usually of stratified squamous cell type, are sessile, and there is likely to be some hyperkeratosis. They are benign. The papillomas may appear as a form of leukoplakia which may be of luetic origin. These are more inclined to malignant transformation. There are those with long pedicles and branching villose papilla that are soft. These are covered with stratified squamous cells and when removed rarely recur. This type may be a transplant from a multiple laryngeal papillomatosis. Sometimes cornified multiple papillomas appear upon the tonsil or other pharyngeal lymphoid structures, as is found in a keratosis of these structures.

Papilloma of the Tonsil.—The most common types of benign tumors found in the tonsil are fibromas and small pedunculated papillomas. Malignant tumors are as often seen in the tonsil as are benign growths. The fibromas found in the tonsil do not differ either in structure or clinical behavior from those that appear in other portions of the nasopharynx.

Papilloma on the tonsil behaves in much the same manner as papillary growths upon other mucous surfaces. In a few of the reported cases, and in those that I have seen, the tumor was so broken up in "cauliflower" excrescences that it was considered malignant until submitted to microscopic examination. The pedunculated type sometimes stands out so far from the mass of tonsillar tissue that it is easily seen as soon as the throat is inspected. The gray color immediately distinguishes the papillomatous type of growth from the hard, pale pink fibroma, which often arises in the same location.

Adenoma.—Adenomas are found in the nasal cavity and nasopharynx but are rare in the accessory sinuses, in spite of the fact that considerable glandular structures are normally found therein. In the nose, their most usual site of origin is upon the septum and turbinates. Thence the tumor easily encroaches upon the ethmoid region or posterior choanae. It may be difficult to determine exactly where it originated if it has grown to considerable size. However, cases undoubtedly primary to the ethmoid labyrinth have been reported. The ethmoid adenomas may invade the sphenoid or the frontal sinus or more often the nasopharynx. Their more frequent occurrence in the nose proper may be explained by the greater proportion of glands found in the nasal mucosa.

An adenoma of the nasal cavity may be either sessile or pedunculated and will vary in size from 1 cm. to several centimeters in diameter. All types are vascular and generally of a bright red color.

Adenomas grow slowly, as a rule, and the symptoms which are late in appearing are mechanical in nature—that is, obstruction of breathing with sensation of pressure in the head. Severe nose bleed for which no adequate cause is immediately apparent is often the only symptom until the growth is very far advanced.

Many of these growths are classed as cystadenomas because they contain cavities lined with cuboid or cylindrical epithelium. Generally the histologic structure is tuboalveolar. In several of such adenomas in my collection the glandular lumina were filled with mucus and inspissated mucoid material. At times this material may appear as colloid or amyloid or may even be calcified. This kind of tumor is frequently referred to as cylindroma. They should not be confused with the mixed salivary gland tumors so frequently found in the oropharynx.

In one case an encapsulated tumor 3 cm. in diameter was situated in the region of the anterior pillar of the tonsil, and upon gross section this tumor had a grayish-yellow appearance not unlike that of the adrenal glands. Microscopically, there were fasciculi of cells or cords of slightly pigmented cells rich in lipoid material. There was some tendency to gland formation, and the lumina of the gland-like structure contained mucoid substance.

Carcinoma.—At the Manhattan Eye, Ear, and Throat Hospital, I have reviewed the pathologic diagnosis of tumors for the ten years from 1931 to 1940, inclusive:[14]

Sarcomas of nose and sinuses	24
Sarcomas of tonsil and nasopharynx	37
Total	61
Carcinoma of nose and sinuses	53
Carcinoma of tonsils and nasopharynx	70
Total	123

They may be conveniently described according to their morphologic appearance histologically: epidermoid, papillary carcinoma, adenocarcinoma, and mixed salivary gland type (malignant).

The epidermoid carcinoma or epitheliomatous type is by far the most common type of epithelial malignancy of the nose and oropharynx, and this is especially true of the larynx.

In general the basal-cell type of carcinoma is that commonly seen on the external surface of the nose in the aged. Basal type of epithelioma may occur in the pharynx, the tonsil, the tongue, the uvula, and the nasopharynx.

Squamous carcinomas of the nose and nasal sinuses usually are preceded by a metaplasia of the columnar epithelium to the pavement type. This metaplasia follows chronic irritation or infection of the antrum or other sinuses. There may be, on the other hand, extension of squamous cells from a fistula or tooth socket, the cells may be a part of a dermoid cyst, or there may be some misplacement of a squamous-cell rest in the complicated embryologic development of the nasal structures. Squamous-cell carcinoma in the ear, nose, and throat region are graded according to Broders'[15] classification upon the proportion of differentiated to undifferentiated or anaplastic cells seen in the tumors. However, most pathologists consider that this commits them to anticipate the physiology of the cells present in the tumor, which unfortunately cannot be accurately determined microscopically. I therefore prefer to speak of the various epitheliomas as of types I, II, III, IV, a classification based upon the extent of anaplasia in the tissues. This typing does not imply any physi-

TABLE 1.—Tumors of the Nose and Accessory Sinuses (Polyps Not Included)

(Pathologic Classification at the Manhattan Eye, Ear, and Throat Hospital in the Ten-Year Period, 1931 to 1940)

Cysts	
Simple retention	15
Epidermoid	4
Nevi	13
Lipoma	1
Fibroma	
Neurofibroma	2
Osteofibrochondroma	4
Mixed chondrofibroma	5
Angiofibroma	16
Osteofibroma	8
Chondroma	1
Osteoid osteoma	3
Lymphoma	5
Angioma	
Lymphangioma	18
Hemangioma	10
Mixed salivary type of tumors	11
Sarcoma	
P[illegible]	2
[illegible]	1
[illegible]	4
Reticulocytic	3
Mixed-cell, chiefly fibroblastic	3
Angiofibrosarcoma	5
Osteosarcoma	2
Lymphoepithelioma	4
Papilloma	
Simple	30
Multiple	8
Hyperkeratotic	9
Epithelioma (squamous-celled)	
Type I	2
Type II	10
Type III	8
Type IV	3
Basal	7
Spinal	2
Adamantinoma	3
Adenoma	6
Carcinoma	
Papillary carcinoma	12
Adenocarcinoma	4
Epidermoid carcinoma	5

TABLE 2.—Tumors of Palate, Tonsil and Nasopharynx

(Pathologic Classification at the Manhattan Eye, Ear, and Throat Hospital in the Ten-Year Period, 1931 to 1940)

Cysts	
Simple	40
Epidermoid	10
Teratoma	13
Fibroma	12
Osteofibrochondroma	2
[illegible]	2
[illegible]	1
Angioma	2
Lymphangioma	
Hemangioma	2
Lymphoma	3
Mixed salivary type of tumors	5
Sarcoma	17
Plasmocytic	
Malignant lymphoma	2
Lymphocytic	3
Reticulocytic	8
Mixed-cell, chiefly fibroblastic	10
Lymphoepithelioma	3
Transitional-celled type	6
Papilloma	5
Simple	51
Multiple	12
Hyperkeratotic	8
Adenoma	13
Epithelioma	
Type I	7
Type II	27
Type III	18
Type IV	8
Basal	3
Spinal	2
Adenocarcinoma	5

ologic characteristic of the tumors but refers to their architectural structure, which can be determined by a microscopical examination.

Squamous-Cell Carcinoma.—The tumors arising from the epidermal surface of the mucous lining of the nose, its accessory sinuses, and the tonsils are usually local neoplasms which grow rapidly and encroach upon neighboring tissues and involve the regional lymph nodes.

If the tumor is seated in the nasal passages it will call early attention to its presence by impeding respiration and drainage from the sinuses. If it is located in the maxillary antrum, its recognition may be late. The tumor may grow backward until it encroaches upon the meninges and the important vascular network in that region, or it may progress laterally so that it soon reaches the orbit or pterygomaxillary fossa. If arising in the forward lower part of the antrum, it may infiltrate the hard palate and the nasal cavity. The lymph nodes which lie in the retropharyngeal spaces receive the drainage from the antrum and the nose proper. Thus malignancies in these areas are rapidly disseminated by lymph drainage, and metastasis to the neck is almost inevitable if the case is at all advanced before it comes under observation.

Differentiation from Adamantinoma.—In differential diagnosis it is important to distinguish from the malignant squamous-cell carcinomas the so-called adamantinomas which appear on the jaw and have been thought to arise from a fetal rest in the oral mucosa, which included cells capable of proliferating tooth enamel. Adamantinoma is a fairly common finding among new growths of the jaws.[16]

Papillary Carcinoma.—A papillary carcinoma is one whose cells are chiefly of the columnar type or of the high cuboid type, infiltrating the stroma much as the squamous cells do. There is a tremendous piling up and papillary production of these cells with relatively small amounts of connective-tissue framework. The bones and other adjacent tissues become involved, necrotic, and sequestrated. Usually metastasis is rapid and extensive. This condition is at times designated as "adenocarcinoma," but, in the present writer's opinion it is a pure papillary type of carcinoma arising from the surface epithelium, with no glandular element present. Differentiation is usually possible by the characteristic palisading or stratification of the cells. At times the cells may be arranged in disorderly fashion, forming large diffuse masses of embryonic cells. These tumors show many mitotic cells, and growth is rapid, with wide destruction of bony and soft tissues

and subsequent metastasis. These tumors remind one of a papillary carcinoma of the urinary bladder. This type of malignancy is rather commonly found in the maxillary sinuses, more rarely in the ethmoid or frontal sinuses. The nasal mucosa and cavities are usually secondarily involved. This kind of tumor is at times difficult to differentiate from a secondary metastasis in the nose, from a primary growth in the prostate, breast, or gastrointestinal tract or from a papillary sinusitis, or a benign inflammatory process.

A papillary carcinoma may be primary in the oronasopharynx, but that is rare. It may be part of a papillary cystadenocarcinoma from a seromucous gland or a mixed tumor of the salivary gland type frequently found in this region.

Epidermoid carcinomas, types II and III, of the crypts of the tonsils are some of the most common types of malignancies of this region. These neoplasms may be found also upon the base of the tongue and upon the mucosa, generally of the soft palate, the pillars of the tonsils, or the mucosa of the oropharynx.

These tumors are particularly malignant, and surgical treatment is usually impractical. Radiation may be of short benefit, but most of these patients succumb in from six months to, at most, two years.

Adenocarcinoma occurs in the upper respiratory tract; however, it is infrequent. In the antrum this growth causes destruction of both soft tissue and bone, often infiltrating the orbit.

The histologic picture is one of atypical glandular formation, with secretion in the acini of the atypical glands; but active mitosis is also present, with much proliferation and poor differentiation of the tissues. All the surrounding structures may be infiltrated, and this is equally true of similar growths originating in the soft palate, tonsils, or nasopharynx. The formation of cylinders of mucoid secretion takes place in the frankly malignant growths as well as the adenomas, and in the stroma, areas of hyaloid or mucoid degeneration are in evidence. Adenocarcinoma here may be hard and of the scirrhous type, or medullary and of the soft cellular type, depending upon the relative amounts of fibrous tissue, epithelial cells, and vascularity.

Adenocarcinoma occurs in the oronasopharynx originating from the seromucinous glands of this region. The primary focus may be a teratoma or tumors of the mixed salivary gland types. In my experience, all types of adenocarcinomas of the upper respiratory tract are particularly resistant to radiation or surgical treatment.

Mixed or Salivary Gland Type of Tumors.—New describes these tumors as of hard consistency with slow growth and little tendency to necrosis. Tumors composed of both mesenchymal and epithelial structures similar to the ones commonly found in the salivary glands are also frequently seen in the lacrimal glands and in the seromucinous glands of the nose, nasopharynx, and pharynx, and are particularly often found in the hard palate, also at times in the soft palate and pillars of the pharynx and base of the tongue.

There is an abundance of literature available on the histology of these tumors in the salivary glands. The earlier pathologists considered them to be of endothelial origin; others, equally competent, thought them to be mixed tumors since they contain tissues arising from two embryonic layers. Fibrous, myxoid, cartilaginous, and glandular structures are mingled irregularly together.

The majority of the modern writers consider all these tumors as of an epithelial nature with secondary hyaline, myxoid, and degenerative changes in the stroma. In the nasal and pharyngeal tumors, cylindroid or round areas of mucus or calcium are noted. Sometimes these tumors are designated cylindromas. Further study of these tumors will, in my opinion, separate the so-called mixed tumors of the seromucinous glands entirely from the salivary gland group. They are not identical. It is unfortunate that they have been considered together.

Teratomatous Fibromas.—Nasal and pharyngeal fibromas may also share in a general grouping of so-called mixed tumors, or teratomas, which occur in the nasopharynx. The stroma of these growths consists of fibrous tissue in which there is a mixture of blood vessels, cartilage, bone, and seromucinous glands. These glands often become cystic and tend to become adenomatous or even adenocarcinomatous. Several cases of laryngeal teratoma have been seen in the author's service. In one case the growth was four times removed, finally becoming adenocarcinoma.

Consideration of pathologic curiosities does not come within the scope of the present discussion. But the so-called teratoid tumors may cause great perplexity in investigation of new growths of the nose and throat.

Many of the tumors which might be classified under the types just described have already been mentioned in the different groups discussed as endothelioma, mixed salivary gland tumors, fibroepithelioma, chondrosarcoma, etc. Their exact classification presents much difficulty and even pathologists of the widest experience will disagree sharply as to the exact nature of the tumors.

The tumors arising from remnants of the hypo-

physial duct or the nasopharyngeal pituitary consist of cysts, adenomas, squamous cell types of epitheliomas, and adenocarcinomas and tumors of adamantinomous type are purposely not reviewed.

In retrospect of many years of contact as a pathologist with neoplasms of the nose and nasopharynx, whether malignant by position or intrinsically, a distinct opinion has been formulated that radical surgery has too frequently been replaced by radiation. It appears that in so far as possible radical removal in these difficult locations should always be undertaken regardless of cosmetic results. Surgery should be supplemented by the most intelligent use of radiation subject to individualization in each case. Herein rests an erudite decision as to whether surgery or radiation should be employed.

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Discussion

Dr. Daniel S. Cunning, *New York City*—I am very glad that I had the opportunity of reading over carefully this very accurate and painstaking review of the tumors of the nose and nasopharynx that were examined in the clinics of the Manhattan Eye, Ear, and Throat Hospital from 1931 to 1940, inclusive.

I believe that Dr. Eggston has seen more and has had more experience with tumors in this region than any man in this country. He has gone into the etiology, symptoms, pathology, and diagnosis and has asked me to say a few words about the treatment.

Time will not permit me to go into the treatment of each individual type, but suffice it to say that in practically all these tumors radical surgery should be instituted to remove the growth completely, if possible.

The benign tumors, such as cysts, lipomas, fibromas, and osteomas, are usually single with small attachments and, as a rule, we have little or no trouble in removing them. But the handling of the malignant type is altogether different, and, as Dr. H. P. Mosher says, it often calls for the surgeon's best judgment, his best skill, and, often, for all of his courage.

It is a sad thing to think that in this enlightened age there are a great many otolaryngologists who turn these cases over to the roentgenologist for treatment as soon as the diagnosis is made. The day has long since passed when the nose and throat specialist can content himself by doing tonsils and septum operations, and simple mastoidectomies. Today the otolaryngologist must be able to do radical surgery of the head and neck, and if he feels that he is not qualified to do this, he should swallow his pride and call on one of his confreres to help him. If this cannot be done, he should turn the case over to someone who can do the radical surgery, instead of advising x-ray and radium to ease his conscience when he knows that in most malignancies in this area such treatment would be only palliative at best. Some few types, such as lymphomas, angiomas, and some types of sarcoma, are radio-sensitive and respond to x-ray and radium, but I believe that even these tumors, in most instances, should first be removed and then given x-ray therapy.

In malignancies of the nose and sinuses where the growth cannot be removed completely through the nose, we should not hesitate to do a radical external antrum operation, a Denker, or even resect the upper jaw, if necessary. If this latter procedure should be necessary, the bleeding as a rule is quite profuse. To counteract this the external carotid artery may be ligated under local anesthesia, then in forty-eight hours the jaw may be removed. We should not wait longer than forty-eight or seventy-two hours, for collateral circulation will be fairly well established after that, and the bleeding will be just as bad as ever. After the growth is removed, several radon seeds should be implanted in the surrounding tissue.

We need not worry too much about scarring, for in these cases we are dealing with malignancies and with a life or death proposition. Plastic surgeons can fix these patients up later on with very little deformity.

In tumors of the nasopharynx, where they cannot be removed through the nose or through the nasopharynx with the soft palate retracted, we should not hesitate to split the soft palate in two, and the hard palate as well if necessary in order to remove the growth. This can be followed by radium and x-ray.

If we find it necessary to remove the hard palate, the oral surgeon can easily make a denture to cover the cavity, and with a few speaking lessons the patient will be able to talk almost as well as he did before.

In closing I should like to stress one point—that is a plea for radical surgery before these cases are submitted to radium and x-ray therapy.

THE TREATMENT OF GALLBLADDER DISEASE

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THE treatment of gallbladder disease constitutes a very important problem in medical practice, yet in very few other diseases are there so many differences of opinion even in regard to the fundamental principles involved in adequate and successful therapy. On the one hand is the surgeon, who feels that gallbladder disease, especially if complicated by the presence of calculi, is always a surgical problem. And yet both surgeons and clinicians are besieged with patients who have had surgical operations which not only have given no relief but have actually increased or added to the symptoms for which operation was performed. On the other hand are the internists, most of whom still think of gallbladder disease as an indication for a fat-free diet, whose patients are *starved, lose weight and strength*, and often suffer from definite deficiency states, with little or no relief of their gallbladder symptoms. Patients are confused and disgusted and the practitioner of medicine is accused of not knowing anything about gallbladder disease, which drives patients to faddists and cultists. And strange as it seems, their results are often quite startling, patients being promptly relegated to the large group of individuals who never have symptoms during life, but are found at autopsy or at operation to have gallbladders packed with stones.

In order to determine the indications for treatment of any disease it is necessary to understand its cause, the disturbances in physiology responsible for its symptoms, and the complications which must be guarded against or cared for. It will therefore be necessary for us to consider briefly each of these points.

Etiology

The cause of gallbladder disease is still a matter of dispute, although there is somewhat general agreement that three factors may account for the disease. These are infection, stasis, and metabolic disturbances. The theory that *infection* plays an important part in all cases has many adherents. The old idea that infection ascended the biliary tract from the duodenum has been pretty generally abandoned, but the notion that absorption of bacteria from the colon may cause a cholecystitis is still being propounded by a few, although proof is lacking. Infection from foci of infection in teeth, tonsils, sinuses, pelvis, rectum, or any other site of chronic infection, is thought by many clinicians to play an important role in causing gallbladder disease, although experimental proof of the migration of bacteria in these cases is not entirely conclusive and although the gallbladder is so frequently found to contain no bacteria. However, the clinical proofs such as the occurrence of cholecystitis coincident with or following acute infectious diseases or acute infections in the upper respiratory tract or pelvis, or in association with other diseases caused by focal infections, and the frequent disappearance of evidences of chronic cholecystitic disease after thorough eradication of all focal infections, are such that some relationship must be admitted, although the exact mechanism may not be definitely understood. Whether allergy to some product developed at the point of infection or the absorption of some toxic agent may be the exact cause is still to be determined.

Stasis as a causative factor in the production of chronic gallbladder disease has long been admitted. Adequate drainage of the biliary tract depends upon the passage of food, especially fat, preferably in an emulsified form, through the duodenum, causing both relaxation of the sphincter of Oddi and the release and absorption of cholecystokinin, producing contractions of the gallbladder. It can therefore readily be seen that stasis in the biliary tract may be caused by inadequate or infrequent stimulation of this mechanism. For instance, the person who habitually or for some definite reason, such as attempted weight reduction, reduces the number of meals to one or two per day or avoids or reduces fats in the diet, is producing biliary stasis, with an increasing backing up of bile into the gallbladder, *resulting in increasing concentration of its contents*, so that precipitation or agglomeration of the concentrated bile may produce calculi or gallbladder "muck." So-called dyskinesia, or failure of relaxation of the sphincter of Oddi, may be due to such bad habits of eating or may be caused by reflex irritation from neighboring disease, such as duodenal ulcer. However, the stasis may also be due to organic causes, such as adhesions or distortions of the cystic duct, as a result of contiguous infections, neoplasms, or congenital anomalies, producing the same effect. Secondary infection may easily be added to the stasis, and may produce serious results.

Metabolism as a factor in causation concerns itself with the production of cholesterol and its concentration in the blood. It has been pointed

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out that cholesterol is ultimately derived from lipoids in the diet and that presumably if there is too great a concentration of cholesterol in the blood it would encourage the formation of calculi in the gallbladder, these calculi being composed largely of cholesterol. However, it has not been explained how with the normal concentration of cholesterol in the blood estimated at 0.130 to 0.190 per cent, and in cholelithiasis at 0.14 to 0.3 per cent, this concentration can influence bile, whose cholesterol content is from 0.45 to 0.6 per cent in bile obtained by duodenal intubation, and 4 to 6 times as concentrated in the gallbladder, with calculi containing up to 90 per cent cholesterol. It is obvious that the length of time the bile remains in the gallbladder is the factor determining its concentration, and this fact explains why the amount of fat in the diet does not influence the formation of calculi.

Allergic reactions have been shown to occur in the gallbladder, food being a frequent offender and chemicals and drugs also producing reactions at times. Sensitization to iodine will occasionally cause errors in cholecystographic diagnosis.

Physiology

Disturbances in physiology producing symptoms include the stasis caused by improper function, which produces a backing up of bile into the common, cystic, and hepatic ducts. In the gallbladder this causes a distention of its walls, resulting in contractions or spasms. If only bile is present in the gallbladder the distention may cause little or no distress, but if calculi are present, distention may result in a sufficient stretching of the neck of the gallbladder so that a violent contraction might project a stone into the dilated entrance to the cystic duct, producing an attack of typical gallstone colic. This mechanism explains the frequency with which a history is obtained of a long period of semistarvation with its attendant stasis, followed by ingestion of a large and perhaps fatty meal at a party, resulting in an attack of colic five or six hours later, when the distended gallbladder with stones has been violently stimulated to contraction. Backing up of bile into the hepatic ducts and liver radicles, if continued over long periods, may produce considerable irritation, even to the point of beginning biliary cirrhosis. This backing up will occur in cases with blocked cystic ducts or nonfunctioning (stone-packed) gallbladders, or after cholecystectomy.

The presence of chronic disease in the biliary tract may also cause irritation of the gastrointestinal tract by contiguity, producing duodenal or colonic irritability or inflammation, or by reflex irritation, producing pylorospasm or cardiospasm and retrostaltic symptoms—the familiar "fair, fat, and forty with indigestion" picture. On the other hand, some diseased gallbladders, even when packed with stones, may cause no symptoms at all or may produce only a feeling of weight or distress in the gallbladder region, especially on stooping. Others may have back pains predominating.

Acute inflammation may cause symptoms of an "acute abdomen," often indistinguishable from acute perforation of a peptic ulcer, acute appendicitis, or acute pancreatitis. In such cases even the use of all known methods of diagnosis may result in errors of diagnosis.

Complications

The complications of gallbladder disease which may cause persistent or atypical symptoms include intrinsic and extrinsic conditions.

Intrinsic Complications.—As has already been mentioned, the presence of calculi may cause symptoms all the way up to colics, or may cause no symptoms at all. Deformities of the gallbladder as a result of inflammations or adhesions may produce constant distress or even typical colics. Acute inflammations of gallbladder and pancreas and liver damage have already been discussed.

Extrinsic Complications.—These are common. Duodenal ulcer is frequently seen in conjunction with gallbladder disease, as is chronic appendicitis. Chronic gastritis with achylia, a frequent complication of long-standing cholecystitis, may give symptoms referable to the stomach or may produce gastrogenic diarrheas. Chronic colitis may also be present. Cardiac complications are not unusual, coronary artery disease being the most serious. Attacks of cardiac pain may be confused with gallbladder colic or may follow the colic and be masked by it. Association with diabetes is also frequently encountered. The presence of other conditions caused by focal infection, such as arthritis, myositis, and neuritis may confuse and complicate the picture.

Before treatment can be successfully carried out it is necessary not only to establish the diagnosis of gallbladder disease but to make a complete survey to look for complications. It is only by the exercise of the greatest care that treatment will be successful.

Treatment

Successful treatment must include prophylactic and hygienic care, attention to the disturbed physiology of the biliary tract, elimination or treatment of complications, and finally, surgical treatment when indicated. To rush into surgery at once upon making a diagnosis of gallbladder disease may produce disastrous results.

Prophylactic Treatment.—This includes first the eradication or careful treatment of all infec-

tive foci, including removal of all dead or badly pyorrheal teeth, retained tooth fragments, or cysts, the extirpation of infected tonsils, adequate care for sinus infections, and treatment or operations for infections of the cervix or adnexa, the prostate or vesicles, rectal crypts, or any other localized infections.

Hygienic Treatment.—This should include attention to proper rest, recreation and fresh air, correction of environmental or psychogenic causes of symptoms, and advice regarding the advantages of a warm climate and the avoidance of violent exercise.

Physiologic Treatment.—This treatment should aim to restore function by stimulating drainage of the biliary tract. Recognizing that stasis is the principal cause of gallbladder disease and the factor causing most of its symptoms makes it entirely illogical to prescribe measures which would increase stasis, such as the popularly recommended fat-free or lipoid-free diets. Realizing that fats and oils are the best stimulants to biliary tract emptying, as witnessed by their use in testing gallbladder emptying in the course of cholecystography, it must be recognized that not only should a gallbladder patient's diet contain adequate amounts of these lipoids, but that they should be taken frequently to maintain adequate and continuous drainage of a diseased biliary tract. In 1926 the writer* first advocated the high-fat diet in gallbladder disease and since then has carried it out consistently in hundreds of cases. At first used only in definitely chronic cases, it gradually was tried out in all kinds of cases, and even in fairly acute cholecystitis and acute pancreatitis the encouragement of drainage by this method has had a salutary effect on symptoms and outcome. It is true that the response of the gallbladder to the cholecystokinin produced by presence of fat in the duodenum is dependent upon the amount of involvement of the gallbladder wall, being very weak or absent in acute cases, but persistent feeding at frequent intervals will at least provide a means of egress for the bile in the ducts by relaxing the sphincter of Oddi. I have seen no cases in which harm was done by the feeding, although in chronic cases for the first few days after institution of the regimen patients may experience more or less distress. Rarely, an attack of colic may be precipitated upon instituting the treatment. By explaining to the patient in advance that this distress may occur and may last for a week or ten days, to be followed by great symptomatic relief, the patient is prepared for discomfort, will cooperate by continuing the diet in spite of it, will be pleased if it is not too severe or prolonged, and delighted if it does not occur at all, as happens in about one-half of the cases.

It must be realized that depending upon the severity or duration of the gallbladder disease, more or less liver damage must have occurred. This has been shown to be almost invariably true not alone by mere inspection of the liver at the time of operations, but by biopsy and autopsy examinations. Where the liver is damaged from any cause certain physiological indications must be recognized, such as the need for a high carbohydrate diet, with extra vitamins and minerals (especially calcium). While excessive ingestion of fats might theoretically be considered to increase the tendency to fatty infiltration, the amounts necessary for biliary tract drainage would not do so. In fact there is still considerable doubt whether fat in the diet can do any harm even in severe liver disease. The need for protein is another moot point, although recently it has been shown that a high protein diet is desirable. However, the researches of Mann and Bollmann have shown that animal proteins, especially their extracts in the form of broths and soups, had a disastrous effect on their hepatectomized and partially hepatectomized animals, and clinicians have long realized that patients with gallbladder disease have not done so well on diets containing meats. The high-protein requirements can easily be met by using eggs, milk, gelatin, and high-protein vegetables in the diet, at least for the first month of treatment. After this meat can be added gradually, with careful observation of results.

The form of diet that I have been using for many years is as follows:

Diet in Gallbladder Disease†

Breakfast:	Milk: one glass
	Cereal: with cream and sugar
	Egg: soft-boiled or poached
	Bread and butter
	Fruit: raw, any kind
Mid-morning:	Milk and crackers, bread and butter, or cake
Luncheon:	Milk: one glass
	Egg: soft-boiled or poached or cream cheese
	Potatoes: baked or mashed
	Vegetables: well cooked, any kind
	Salad
	Bread and butter
	Dessert: pudding, ice cream, jello, or fruit (raw or cooked)

* Andresen, Albert F. R.: Treatment of Chronic Gall-Bladder Disease, Long Island Medical Journal, April, 1926.

† NOTE: *The caloric value of this diet can be adjusted to the patient's weight by increasing or decreasing the carbohydrate content.*

Mid-afternoon:	Milk and crackers, bread and butter, or cake
Supper:	Same as luncheon
Bedtime (and in night if awake):	Milk and crackers, bread and butter; or cake
Olive oil:	1/2 ounce, or cream, 1 ounce, three times daily with meals
Water:	At least 4 or 5 glasses a day

This diet is ordered for the patient immediately upon diagnosis or suspicion of gallbladder disease. Although, as mentioned, it may occasion some increase of symptoms for awhile or may even precipitate an attack of colic, persistent feedings should, within a few days, result in marked improvement. Failure of such improvement should not lead to abandonment of the diet, but should suggest a complication which may require definite treatment, usually surgical. It should be understood that this diet is not to be used where there is evidence of definite blockage of the common duct.

Medicinal Treatment.—Aside from the use of sedatives and antispasmodics where these are definitely indicated, as in biliary colic or excessive distress during the early stages of treatment, we have found no need for medication. Although bile salts will increase the flow of bile from the liver and somewhat decrease its concentration, there is as a rule no need for this, as with adequate diet and fluids the bile is not too concentrated and flows freely unless blocked in the biliary ducts. Ivy has shown that bile salts have no effect on gallbladder emptying. We have used no bile salt preparations of any kind for the past twenty years or more. With adequate bulk in the diet laxatives are unnecessary, but if required a little mineral oil at night is usually sufficient to facilitate defecation. Rarely are enemas indicated. Although sulfonamides have been recommended, especially in acute cases, I have had no experience with them.

The Treatment of Complications.—The first question is what to do in cases showing definite evidence of gallstones. While in general it may be conceded that stones are an indication for operation, there are factors which tend to modify this indication. When we realize that with gallbladders full of stones patients may go through a long life without ever showing a symptom suggesting their presence, we cannot be too dogmatic about the indications for operation. The argument is often presented that the presence of stones predisposes to the development of carcinoma, and that therefore their removal is indicated to prevent malignant degeneration. However, biliary tract carcinoma is an extremely rare disease, and it is undoubtedly true that the percentage of its occurrence with gallstones is considerably less than the mortality resulting from operative procedures. The age and physical condition of the patient are important considerations in making a decision as to whether surgery is indicated. In a young subject in good physical condition and with every prospect of a successful operation, the possibility of developing complications as a result of the presence of stones in later life should make the decision to operate quite imperative. In older patients, who are poorer operative risks, it may be better to let a sleeping dog lie, and if these patients can be made symptom-free by the treatments I have previously outlined, I believe it is wise not to operate. It is difficult to establish age limits, but in general I feel that in patients under forty years of age operation should be performed in every case which is a good operative risk, even though symptoms have been relieved by medical care, and that in those over sixty practically all patients without symptoms should not be operated upon except for persistent, disabling symptoms. Although patients with definite coronary artery disease, even with evidence of previous thromboses, have been successfully operated upon and apparently benefited by the removal of gallbladders containing stones, I feel that operation should be performed only after a prolonged trial has demonstrated that the patient cannot get relief of symptoms by medical treatment.

Adhesions or deformities resulting from scarring or old perforations may cause such persistent symptoms due to partial obstruction to biliary flow or to traction on neighboring organs, especially the duodenum, as to require operation for their relief. In general, however, operation in the absence of stones has not been attended with good results and one should hesitate to advise operation in noncalculous cases unless prolonged and adequate medical treatment has shown no results.

Acute cholecystitis, often accompanied by more or less acute pancreatitis and hepatitis, presents a serious problem in treatment. The danger in not operating upon such cases is that the gallbladder may perforate, although such perforation is not so serious as perforations elsewhere, and operation for the perforation is not attended by too high a rate of mortality. Another danger is that the diagnosis may be wrong and an acute appendicitis or a perforated peptic ulcer may be the cause of the acute abdominal symptoms, failure to operate resulting in disaster. It is therefore imperative that careful study by history-taking, physical and laboratory examinations, and x-ray to determine presence of free gas in the peritoneal cavity should

precede the decision not to operate. It is true that in uncomplicated acute cholecystitis the patient will usually do well without operation, but very careful observation is necessary during the first few days to guard against complications. Intravenous fluids containing glucose, vitamins, and proteins, the latter either in the form of blood or plasma transfusions or intravenous amino-acid preparations, are important. Orally, fluids are also indicated. I have used, to begin with, feedings every two hours of fruit juices with added glucose and gelatin, milk and glucose mixtures, and cereals with glucose and milk, adding to these as symptoms subside, until within a week or ten days the full gallbladder diet is again attained.

Peptic ulcer is a frequent complication of gallbladder disease and the symptoms of each may mask those of the other disease. Pains of typical ulcer incidence may occur in the gallbladder region when both conditions are present, or biliary colics may suggest perforation in known cases of ulcer. The usual close proximity of gallbladder and duodenum make adhesions between these organs quite common and at times a perforated ulcer may have been walled off by such an adhesion. Such cases show abnormal persistence of ulcer symptoms with or without gallbladder symptoms. Typical ulcer diets, with their frequent feedings and adequate fat content, are very suitable for the complicating gallbladder disease, and failure to get relief from such a diet may indicate a complication requiring an operative procedure. In cases with obstruction of the duodenum by adhesions and cicatrices excellent results are obtained by cholecystectomy and gastroenterostomy.

Gastritis is also a fairly constant complication of gallbladder disease. In the early stages it may be accompanied by hypersecretion, but in the chronic cases an anacidity is usually found. This may at times account for the rather frequent symptoms and findings of bowel irritability, or there may be actual enteritis or colitis. Suitable diet alone usually relieves these symptoms, but at times dilute hydrochloric acid may be administered.

Appendicitis, chronic or acute, may also complicate cholecystitis, or in cases where the appendix points upward, may simulate it. At operations for gallbladder disease it is always imperative to examine the appendix carefully.

Allergy may be an annoying complication. Failure to get results from the diet suggested may not be due to organic complications but may result from sensitization to some food or foods in the diet. The allergic reaction rarely occurs in the gallbladder itself, but may occur in the stomach or intestine, producing severe colics resembling biliary colic, an "acute abdomen" or an intestinal obstruction. Several times I have seen patients who had been subjected to operation for such acute symptoms, not once but several times, with normal appendices or gallbladders unnecessarily removed. In an acute attack the often dramatic relief obtained from a single dose of epinephrin or ephedrine should suggest that this be tried before an operation is performed. In the chronic cases, diet study and so-called "elimination diets" are of help in determining the offending foods, so that they may be eliminated from the diet. The danger in cutting down diets too much by avoiding foods not proved to be harmful must be emphasized. Frequently patients have reduced their diets in such cases to the point where actual symptoms of food deficiency are present.

Arthritis, especially spinal, myositis, neuritis, or radiculitis may often simulate gallbladder disease, and should be definitely ruled out in cases in which operation is being considered, especially where no stones have been found. However, I remember a patient forty-eight years old with a gallbladder full of stones and a bad heart which made her a poor operative risk, whose pains had been so persistent that operation had been decided upon, who on spinal x-ray showed such a marked cervical spondylitis that it was decided to have this treated before resorting to operation. She was completely relieved by this treatment and lived twenty years afterward with no further gallbladder symptoms.

Surgical Treatment.—As has been pointed out, operation is frequently necessary in gallbladder disease. The operation of choice today, attended with the greatest hope for permanent relief, is cholecystectomy. Most surgeons hesitate to operate in chronic cases unless stones are known to be present, because results in noncalculous cases have been none too good. At times, when the patient is a poor operative risk or when the gallbladder at operation looks normal except for the presence of stones, cholecystotomy, removal of the stones, with or without resort to drainage, may be all that is required, and I have seen a few excellent results from this procedure in cases in which all the other methods of gallbladder treatment I have mentioned had been carried out before or after operation.

The most important considerations in gallbladder surgery are adequate preparation of the patient for operation and proper care after the operation. Failure to look after preparation results in the high immediate morbidity and mortality so often encountered, and neglect of postoperative care, not only immediately after operation but later, results in the large number of such cases going the rounds of surgeons' and internists'

offices seeking relief from symptoms which are as bad or worse than before operation. My procedure is as follows:

Preoperative Care in Chronic Gallbladder Disease.—Having made a complete study of the patient and having found that a gallbladder containing stones is to be operated upon or that symptoms from persistent deformities or other complications cannot be relieved by medical means, it is important to prepare the patient for operation by looking after the following factors:

1. Check on all focal infections and have these thoroughly eradicated or adequately treated. Failure to do this often results in serious lung complications after operation (atalectasis or pneumonia).

2. Check blood carefully, treating anemia by suitable methods, using vitamin K in cases showing impaired coagulability, and matching donors in case transfusion should be required.

3. Check urine and blood chemistry in order to avoid renal complications.

4. The cardiac status should be determined and adequate treatment instituted when required.

5. Emphasize the importance of following the diet up to the day of operation, in order to keep the biliary tract as well drained as possible.

6. Administer polyvitamin preparations and minerals, especially calcium salts, and avoid meat or meat extractives, in order to conserve liver function. In acute cholecystitis all of these preparations cannot be made, but rules 2, 3, and 4 can be followed, and vitamins and minerals can be parenterally administered, together with transfusion.

Postoperative Care.—Postoperative care presents a few other problems:

1. Inhalations of carbon dioxide and oxygen should be started soon after operation to encourage adequate ventilation and to avoid the serious complication of lung collapse which occurs so frequently in upper abdominal operations because of splinting of the diaphragm.

2. Moving the patient frequently from side to side is also important to prevent lung complications.

3. Fluids should be administered parenterally, avoiding overdosage. Many postoperative edemas have been shown to be due to the washing out of water-soluble vitamins or upsetting the water and mineral balance by means of excessive fluid administration. It is therefore well to administer cevitamic acid in large doses (0.5 to 1 Gm.) with the intravenous glucose and saline solutions and to give vitamin B complex intramuscularly at the same time.

4. Feedings should be started as soon as the patient can swallow. It is important to establish biliary drainage as soon as possible after operation, to prevent backing up of the constantly secreted bile into the stump of the cystic duct or into the liver. The full gallbladder diet should therefore be given as soon as possible. For the first day or two feedings every two hours of mixtures containing milk, cream, and glucose, with occasional additions of egg, especially of the yolk, will provide for adequate biliary drainage, and will make the patient comfortable. Early feedings also prevent ileus by providing proper stimulation to gastrointestinal peristalsis, so that laxatives or enemas are rarely required, and intestinal intubation can usually be avoided.

5. Upon discharge the patient should be given definite instructions regarding the diet, and the type of diet suggested before should be followed for at least six or eight weeks. After this further additions can be made, but the frequent feedings will always be necessary for biliary tract drainage.

6. Admonition regarding care of focal infections which develop in the future is also important.

Summary

1. Since gallbladder disease is caused by a combination of stasis and infection, it is important that both of these factors be borne in mind in treatment.

2. Stasis is best avoided or treated by frequent feedings containing sufficient fat to produce adequate and almost continuous drainage.

3. Focal infections should be thoroughly eliminated.

4. Surgical treatment performed for complications or persistent symptoms should be preceded by adequate preparation and followed by careful postoperative care.

5. Adequate treatment, whatever its kind, should result in a complete relief of symptoms.

LEGS MAY BE SAFETY FACTOR FOR HEART

Discussing recently reported investigations which showed little effect on the hearts of normal persons from rigorous exercise in sports, the *J.A.M.A.* says that "Perhaps it is safe to believe that in the majority of instances the legs or other elements of the musculoskeletal system would tend to give out before the heart, thereby serving as a factor of safety."

INTRAVENOUS CALCIUM GLUCONATE AS AN AID IN THE REDUCTION OF POST-TRANSFUSION REACTIONS

IRVING SHERMAN, M.D., BERNARD B. ALPERSTEIN, M.D., AND BERNARD K. SHERMAN, M.D., Brooklyn

MANY precautions have been devised to avoid post-transfusion reactions, and yet they do occur. Briefly, these reactions may be due to: (1) chemical factors, such as impure citrate, saline, or distilled water; and pyrogenic substances; (2) hemolytic factors, due to incompatibility, faulty crossmatching, subgroups, and universal donors; and (3) proteolytic factors producing allergic or anaphylactic phenomena.[1] It seems that even when all these factors are adequately guarded against, a number of reactions still do occur. Some transfusionists have interpreted as a reaction a slight rise in temperature; other experienced transfusionists insist that a chill and rigor must be present. Recent reports, in addition to our own observations, have shown that reactions occur in approximately 10 per cent of the cases. At the Mayo Clinic from 1937 to 1939, 9,823 transfusions were performed. In this series there were reported 9.4 per cent untoward reactions of various grades.[2]

An unusual feature in avoiding post-transfusion reactions in two patients who received twenty-one transfusions provoked an investigation into the problem of reducing the incidence of reactions even after all precautions have been taken. The cases of these two patients are presented.

Case Reports

Case 1.—Patient H. C., a 25-year-old man, developed a hypoplastic anemia with a severe thrombocytopenia due to a contact with a paraphenylenediamine dye while handling furs. The cardinal clinical features were a maculopapular rash over the hands, arms, and face, with lichenification of the skin over both wrists and the dorsum of both hands. There was profuse bleeding from the gingival margins, and there were also purpuric eruptions over the arms, legs, and chest.

The hematologic studies were as follows: peripheral blood count: hemoglobin, 40 per cent (Sahli), 5.8 Gm.; red blood cells, 1,920,000; and white blood cells, 2,150. The differential count gave these results: myelocytes, 2 per cent; stab cells, 21 per cent; segmented cells, 22 per cent; lymphocytes, 42 per cent; large lyphocytes, 7 per cent; and monocytes, 6 per cent.

The peripheral blood smears showed macrocytosis, anisocytosis, poikilocytosis, and achromia. The platelets present were large and swollen.

Platelets were 5,000; bleeding time, fifteen minutes plus; coagulation time, eight minutes; clot retraction—none in twenty-four hours; prothrombin time, thirty-five seconds; reticulocytes, ¼ per cent. The blood was type A (International), Rh positive.

The fragility test began at 0.375 and was completed at 0.250.

Hemocrit study: hemoglobin, 5.8 Gm.; red blood count, 1,920,000; corpuscular volume, 21; color index, 1.05; volume index, 1.3; mean corpuscular volume, 110 cubic microns; mean corpuscular hemoglobin, 30 micromicrograms; and mean corpuscular hemoglobin concentration, 27.6. The anemia was hypochromic normocytic in type.

Bone marrow study showed a bone marrow count of 25,000 (ratio of nucleated red cells to white cells, 1:3). The differential count was: myeloblast, 1 per cent; promyelocyte, 1 per cent; myelocytes, 16 per cent; metamyelocytes, 8 per cent; young cells, 5 per cent; stabs, 24 per cent; lymphocytes, 23 per cent; and large lymphocytes, 8 per cent; monocytes, 12 per cent; and eosinophils, 2 per cent.

In counting 100 white cells, 5 megaloblasts, 6 macrocytes, and 22 nucleated red cells were encountered.

Rigidly observing all factors for the prevention of post-transfusion reactions, the patient was given a first course of thirteen transfusions. Five were given by the direct Soresi method and eight by the indirect citrate method. In eleven of these transfusions, there was a rise in temperature ranging from 100.4 to 104.6 F., with severe chills and rigor. The latter lasted from twenty to forty minutes. In the other two transfusions, one by the direct, the other by the indirect method, there was only a rise in temperature. On six occasions transfusions had to be stopped after 150 cc. of blood were given because of a tightness of the chest, difficulty in breathing, and the onset of chills. All the donors in the thirteen transfusions were type A (International), 10 were Rh positive, and 3 were Rh negative.

The hazard of repeated chills and rigor with sundry symptoms presented a pressing problem. Although all factors for the prevention of post-transfusion reactions were rechecked, none could be found. On the thirty-ninth day of the patient's illness 10 cc. of a 10 per cent calcium gluconate solution were given intravenously, very slowly (two to three minutes), for the first time. Immediately after this, the transfusion was given. There was no reaction. This was repeated on the fortieth day, and again no reaction followed. On the forty-first day, without a preliminary intravenous injection of calcium gluconate, transfusion was performed once more. Rigor and chill ensued immediately afterward. From this day on until the seventy-second day of the patient's illness, he received thirteen transfusions by the indirect citrate method, each

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preceded by an intravenous injection of 10 cc. of 10 per cent calcium gluconate solution. On no occasion did he have a rigor or chill. In two instances there was a rise in temperature about eight to twelve hours after transfusion. Coincidentally, however, during this same period, the patient had a large abscess on the right buccal wall. This subsequently opened and drained.

In the second series of transfusions, it was noted that the blood of a donor was used whose blood, in the first series, produced a rise in temperature with chills and rigor. This time, after the intravenous injection of calcium gluconate prior to transfusion, there was no reaction. Another important observation was that the patient was able to take 500 cc. of blood very comfortably in the last thirteen transfusions (second series) immediately after the calcium gluconate was given intravenously.

Case 2.—A second patient, E. B., a girl 19 years of age, developed an aplastic anemia following a subacute yellow atrophy of the liver. In addition to her intense jaundice, she had an abscess on the left buccal wall, a gangrenous area on the left labia of the vagina, and a hard, indurated mass on the left thigh. These areas of infection ruptured spontaneously, discharging a foul-smelling exudate. Coincident with the time of the infections, the patient's temperature ranged between 99 and 105 F.

The hematologic studies showed: peripheral blood count: hemoglobin, 74 per cent (Sahli), 10.73 Gm.; red blood cells, 3,810,000; and white blood cells, 1,250. (Subsequently the count dropped to 50, with a complete lymphocytosis.) The differential count was as follows: stabs, 32 per cent; segmented cells, 8 per cent; eosinophils, 1 per cent; lymphocytes, 52 per cent; and monocytes, 7 per cent.

Platelets were 0; bleeding time, fifteen minutes plus; coagulation time, seven minutes; clot retraction—none in twenty-four hours; prothrombin time, thirty-three seconds; reticulocytes, 1/2 per cent; type O (International) blood, Rh positive; and icteric index, 61.

The van den Bergh test gave an immediate direct positive reaction.

Bone marrow study: bone marrow count, 4,000 cells; ratio of nucleated red cells to white cells, 1:5; myeloblasts, 4 per cent; promyelocytes, 4 per cent; myelocytes, 2 per cent; stabs, 7 per cent; eosinophils, 2 per cent; lymphocytes, 50 per cent; large lymphocytes, 9 per cent; monocytes, 12 per cent; and reticulo-endothelial cells, 10 per cent.

The bone marrow study showed a severe aplasia of all the elements of the blood—namely, the erythropoietic myeloid and megakaryocytic tissue. In the peripheral blood there was a severe neutropenia with a lymphocytosis and a complete thrombocytopenia.

In this type of blood dyscrasia it has been our experience that post-transfusion reactions do invariably occur. Hence, the method of using calcium gluconate intravenously preceding transfusion was adopted here. The patient received eight transfusions in this manner. The donors were type O (International). Five were Rh positive; three were Rh negative. On no occasion did the patient have a chill or rigor.

Thus, two patients with severe blood dyscrasias had neither chill nor rigor after twenty-one transfusions with an intravenous injection of calcium gluconate preceding each one. This experience led to an investigation of the problem of reducing the incidence of post-transfusion reactions. Up to the present time 175 transfusions have been performed with preliminary intravenous injections of calcium gluconate. On only two occasions did rigor and chill occur. A complete report will be submitted when the number of patients transfused is large enough to permit analysis and to draw conclusions.

Summary

1. The incidence of post-transfusion reactions was markedly reduced when 10 cc. of a 10 per cent calcium gluconate solution was given intravenously very slowly just prior to transfusion.

2. This method is offered for confirmation and further investigation.

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References

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EAR, NOSE, AND THROAT SOCIETY PLANS MEETINGS

The Section meetings of the American Laryngological, Rhinological, and Otological Society are scheduled as follows: Southern Section—Saturday, January 8, Atlanta, Georgia; Middle Section—Wednesday, January 12, Cleveland, Ohio; Eastern Section—Friday, January 14, New York City; Western Section—Saturday and Sunday, January 22 and 23, Los Angeles.

The programs will be mailed in December.

Sentiment in favor of holding the annual meeting has become so strong that preparations for such a session have already commenced.

An effort is being made to have the meetings of the American Otological Society, the American Laryngological Association, the American Broncho-Esophagological Association, and the Triological Society held consecutively and in the same city. Chicago and Atlantic City have been suggested as possible meeting places, the time to be in May or June. Unless unforeseen circumstances prevent, it is expected that the Council, in conjunction with the Councils of the other societies, will approve plans for the annual session. Dr. Marshall Taylor is preparing the program.

Diagnosis

CLINICOPATHOLOGIC CONFERENCES

FOURTH MEDICAL DIVISION OF BELLEVUE HOSPITAL

Date: November 4, 1943

Presented by: Dr. Arnold Koffler

DR. MARY FINCK: R.T., a 55-year-old colored night watchman, was admitted to Bellevue Hospital on May 26, 1943. His history dated back to three years before admission, at which time he noticed the onset of weakness and fatigue, slight dyspnea on exertion, and a low-grade fever. A local physician told him that he had "high blood pressure" and an "irregular heart action." The fever subsided after several months but recurred during the year before admission, rising to 101 F. at about weekly intervals, accompanied by sweats but no chills. During the year prior to admission the patient also suffered from frequent low occipital headaches. For several months before admission, the patient noted loss of appetite, a 30-pound weight loss, and increased shortness of breath on exertion, as well as an increase in a chronic cough which had been present for several years. The patient was able to work until one week preceding entry to the hospital. At about that time he developed pain across the lower chest and epigastrium, which was not related to breathing or coughing but was relieved by strapping.

Past history revealed that the patient had had joint pains at the age of 8 years, with no recurrence, and an illness of unknown nature following drinking of river water at 14 years; lues in 1917, which was treated for one and one-half years, resulting in a negative Wassermann; gonorrhea in 1917; and influenza in 1934. The patient admitted fairly heavy alcohol intake; otherwise his habits were good.

Physical examination on admission revealed a large, well-developed, well-nourished colored man in no acute distress, but dyspneic on slight exertion. The temperature was 102.8 F., the pulse 88; respirations 26, and blood pressure 160/100. The fundi showed arteriolar narrowing and several whitish areas interpreted by the Eye Service as old exudates. The teeth were in poor condition. There was moderate dilatation of the neck veins. Examination of the heart showed enlargement on the left side. There was regular sinus rhythm with extra systoles, a harsh systolic murmur over the whole precordium, loudest over the base, and a split second sound at the left margin of the sternum. The lungs were resonant, breath sounds vesicular, and no rales were heard. The abdomen was moderately distended and the liver was palpated two centimeters below the costal margin. There was moderate tenderness under the left costal margin in the axillary line. The prostate was enlarged to about twice normal size. The hands showed a rather coarse tremor and suggestion of clubbing of the fingers.

Laboratory Data.—The red blood count on admission was 3,200,000 with 11.2 Gm. of hemoglobin; the leukocyte count was 5,150 with 62 per cent polymorphonuclears, 32 per cent lymphocytes, and 5 per cent monocytes. The urine showed a specific gravity of 1.017 and occasional white and red blood cells. The blood Wassermann was negative, as was a blood culture. An examination of the blood smear for malarial parasites was also negative. The white blood count remained essentially the same throughout the patient's hospital stay, but the urine developed 1 plus albumin. On June 1 a spinal tap was done which yielded clear fluid with initial pressure of 130 mm. of water. There was no pellicle formation, there were no cells, and the Pandy reaction was negative. The spinal fluid chlorides were 710 mg. per cent. On June 2 the blood agglutinations were positive for typhoid "O" and "H" in 1:80 dilutions, but negative for paratyphoid, brucella, and Weil-Felix bacillus. The blood calcium was 8.0 mg. per cent, and the phosphorus 3.43 mg. per cent. On June 5 a stool culture was negative for typhoid, paratyphoid, and dysentery organisms. The blood nonprotein nitrogen was 47 mg. per cent and the carbon dioxide combining power was 54 volumes per cent. An electrocardiogram showed severe myocardial changes with early bundle branch block. A roentgenogram of the chest showed intense hypervascularization of both lungs with confluence of the lesions at the right base. The heart was slightly enlarged and the aorta widened.

Clinical Course.—The temperature remained above 102 F. and the patient's pulse rate was 100 to 130 per minute. The blood pressure varied between 125/40 and 160/100. Two days after admission, examination of the chest showed transient moist rales in both interscapular areas, which within a few days extended to the right base. On the sixth hospital day the patient ap-

peared acutely ill, dyspnea was marked, and the temperature rose to 104.6 F. The abdomen was more distended and urinary frequency and urgency were present. The patient became somnolent and exhibited frequent muscular twitchings. Nasal oxygen, fluids by mouth and by vein, and sulfadiazine to 20 Gm. were used with apparent slight improvement. On June 5 sulfaguanidine was started and continued to 27 Gm., with no response. The dyspnea became extreme in spite of nasal oxygen. The patient became semicomatose and died on the eleventh hospital day.

Discussion

DR. ARNOLD KOFFLER: The case to be discussed today presents the features of pyrexia of unknown origin, which always leads to interesting speculations. On admission, the patient did not appear to be acutely ill; the temperature was 102 F.; there was moderate dyspnea and absence of leukocytosis. Even though the spleen was not palpable, there was some tenderness under the left costal margin, which made us feel we might infer that there was some splenic pathology. Negative blood agglutinations and smears practically ruled out brucellosis, typhoid, and malaria. The history dates back to three years preceding the patient's entry into hospital, with slow onset of fatigue, weakness, loss of weight, dyspnea, sweats, and low-grade fever. This at once focused our attention on the respiratory system. Tuberculosis was, of course, considered. The respiratory signs and symptoms progressed rapidly. The dyspnea was an outstanding feature and was not related to posture, as is common in cardiac failure. No other signs of congestive failure were noted. The moisture present in the interscapular areas rapidly spread downward to the bases, especially on the right side. The x-ray of the chest showed diffuse hypervascularization—that is about the only conclusion I can draw from this plate. Headache, tremor of the extremities, irritability, and some nuchal rigidity drew our attention to the central nervous sytem. The spinal tap, however, was negative. Unfortunately, a sputum examination was never made, but the pulmonary signs, added to a chronic history of cough, weight loss, etc., suggested an acceleration of a long-standing process. Most of us came to the conclusion that we were dealing with a rapid hematogenous dissemination or miliary tuberculosis of the pulmonary type. The typhoidal and cerebral manifestations were present, but in the absence of any focal signs or laboratory confirmation of meningeal involvement the meningeal type of miliary tuberculosis was excluded. The cerebral symptoms could then be best explained on the basis of a severe toxic state. As to the cardiovascular angle in this case, the patient might have had a subacute bacterial endocarditis engrafted on an old luetic heart. However, the patient apparently had had adequate and early treatment for lues which resulted in a negative Wassermann. Of course, there was a history of hypertension of three years' duration, moderate cardiac enlargement, and evidence of peripheral and fundal arterial sclerosis. The systolic murmur and electrocardiographic findings of severe myocardial changes, including early bundle branch block, would be on an arteriosclerotic basis. However, miliary cardiac involvement is a possibility, too.

DR. HARRY A. SOLOMON: The indication of some renal pathology, the cerebral manifestations, the intermittent fever, and the heart murmur should suggest subacute bacterial endocarditis.

DR. ARNOLD KOFFLER: The acute phase of the disease of such short duration and the chronic history of as long as three years both seem inconsistent with the diagnosis of subacute bacterial endocarditis. The cerebral symptoms were minimal and of comparatively short duration. The clubbing of the fingers was questionable. There were no definite signs of renal failure.

DR. HARRY A. SOLOMON: A blood nonprotein nitrogen of 47 mg. per cent is above normal for our laboratory.

DR. HENRY C. FLEMING: It seems to me that the tenderness under the left costal margin could have been caused by splenic infarctions, which would tend to corroborate the diagnosis of subacute bacterial endocarditis. Also, we may find that a luetic aortitis is present.

DR. MAX TRUBEK: On reading over the case history I did not think of subacute bacterial endocarditis as a possibility. This patient must have had a calcific aortic lesion, probably on the basis of an old rheumatic valvulitis, in view of the suggestive previous history of rheumatic fever. The heart lesion, I believe, was not related to the present illness. The relatively low specific gravity, the enlarged prostate, and other urinary findings might have suggested a chronic pyelonephritis with terminal uremia. Miliary tuberculosis might explain the picture. The x-ray of the lungs in this case is of little help. It has been our experience that Negroes who continue to run a fever with leukopenia often have miliary tuberculosis.

DR. EMANUEL APPELBAUM: My impression is that this is an instance of generalized miliary tuberculosis. I believe that the patient's cardiac condition is unrelated to his terminal illness. This type of course is not unusual for a case of chronic pulmonary tuberculosis terminating in a

generalized miliary tuberculosis as a result of an acute hematogenous dissemination. The febrile state, progressive asthenia, and final termination with meningeal irritation are consistent with such a diagnosis. As regards the type, it is best to label it the pulmonary form of generalized miliary tuberculosis, as was evidenced by the patient's severe dyspnea. Although the x-ray picture is not conclusive, it could well fit in with this diagnosis. Judging from the spinal fluid findings, there is no basis for assuming or diagnosing tuberculous meningitis. In this connection it may be of interest to discuss briefly the pathogenesis of tuberculous meningitis. There are three mechanisms. The meningitis may result from an acute hematogenous dissemination of the organisms which may be part and parcel of the generalized miliary spread. This mechanism is not so common as is generally assumed. More commonly, the tuberculous meningitis results from a rupture of a submeningeal miliary tubercle which had been seeded at some previous time. In rare instances, the tuberculous meningitis results from a spread of the organism from adjacent diseased bony structures. You may recall that we had at this conference an instance of tuberculous meningitis following an operation on a tuberculous spondylitis. With regard to the occurrence of choroidal tubercles in generalized miliary tuberculosis—they are probably more frequent than is commonly believed. Repeated and prolonged examinations are often required in order to detect them.

DR. HARRY A. SOLOMON: It would seem that a patient with fever for three years due to pulmonary tuberculosis would show some x-ray evidence of tuberculosis, probably cavitation.

Presentation of Pathology

DR. ROBERT POPPITI: At necropsy, the body was that of a well-nourished and normally developed Negro man. There were no external findings of note.

There was no free fluid in any of the body cavities.

The right and left lungs were both enlarged and weighed 750 and 800 Gm., respectively. Scattered diffusely over their pleural surfaces were innumerable small tubercles. Their cut surfaces were markedly edematous and also contained innumerable tubercles.

Present in the hilar region was a large lymph node measuring 2 by 2 by 1 cm. It was completely replaced by gray, granular, necrotic material.

The heart was moderately enlarged from hypertrophy and dilatation of both ventricular chambers. All valves were natural except for some atherosclerotic thickening of the anterior leaflet of the mitral valve and the posterior cusp of the aortic valve. Mild atherosclerotic changes were visualized in both coronary arteries.

The remaining viscera presented no gross findings of note other than a small area of caseation necrosis in the right adrenal gland.

Microscopic examination of several sections of the lung revealed complete destruction of the bronchiolar epithelium and infiltration of their walls with large mononuclear cells, small round cells, and an occasional giant cell. The neighboring alveoli were filled with large mononuclear cells. Scattered here and there within the alveolar septa were numerous discrete tubercles.

Sections of liver, kidney, pancreas, spleen, adrenal gland, and hilar lymph node showed the presence of numerous small caseating tubercles.

Anatomic Diagnoses

Tuberculous bronchopneumonia involving both lungs.
Tuberculous lymphadenitis—hilar node.
Miliary (hematogenous) tuberculosis of liver, spleen, pancreas, adrenals, and kidneys.
Hypertrophy and dilatation of the heart.
Atherosclerosis of mitral and aortic valves.
Coronary atherosclerosis.

WARNS OF POSTWAR MISUSE AND WASTE OF MEDICAL SUPPLIES

Doctors and manufacturers of drugs and surgical and medical supplies should act now to avoid postwar waste and misuse of these materials such as followed the last war, Col. Charles F. Shook, of the U.S. Army Medical Corps, declared at the National Conference on Planning for War and Postwar Medical Services held in New York under the auspices of the Carlos Finlay Institute of the Americas.

Following the last war, Colonel Shook said, millions of dollars' worth of medical supplies were dumped on the market, causing ruin to many manufacturers. Even more serious, he added, were the numerous examples of inferior or spoiled medical equipment which was sold and used to the danger of public health. He referred specifically to surgical sutures which had been allowed to spoil and were then used, causing dangerous infection.—*Science News Letter*

peared acutely ill, dyspnea was marked, and the temperature rose to 104.6 F. The abdomen was more distended and urinary frequency and urgency were present. The patient became somnolent and exhibited frequent muscular twitchings. Nasal oxygen, fluids by mouth and by vein, and sulfadiazine to 20 Gm. were used with apparent slight improvement. On June 5 sulfaguanidine was started and continued to 27 Gm., with no response. The dyspnea became extreme in spite of nasal oxygen. The patient became semicomatose and died on the eleventh hospital day.

Discussion

DR. ARNOLD KOFFLER: The case to be discussed today presents the features of pyrexia of unknown origin, which always leads to interesting speculations. On admission, the patient did not appear to be acutely ill; the temperature was 102 F.; there was moderate dyspnea and absence of leukocytosis. Even though the spleen was not palpable, there was some tenderness under the left costal margin, which made us feel we might infer that there was some splenic pathology. Negative blood agglutinations and smears practically ruled out brucellosis, typhoid, and malaria. The history dates back to three years preceding the patient's entry into hospital, with slow onset of fatigue, weakness, loss of weight, dyspnea, sweats, and low-grade fever. This at once focused our attention on the respiratory system. Tuberculosis was, of course, considered. The respiratory signs and symptoms progressed rapidly. The dyspnea was an outstanding feature and was not related to posture, as is common in cardiac failure. No other signs of congestive failure were noted. The moisture present in the interscapular areas rapidly spread downward to the bases, especially on the right side. The x-ray of the chest showed diffuse hypervascularization—that is about the only conclusion I can draw from this plate. Headache, tremor of the extremities, irritability, and some nuchal rigidity drew our attention to the central nervous sytem. The spinal tap, however, was negative. Unfortunately, a sputum examination was never made, but the pulmonary signs, added to a chronic history of cough, weight loss, etc., suggested an acceleration of a long-standing process. Most of us came to the conclusion that we were dealing with a rapid hematogenous dissemination or miliary tuberculosis of the pulmonary type. The typhoidal and cerebral manifestations were present, but in the absence of any focal signs or laboratory confirmation of meningeal involvement the meningeal type of miliary tuberculosis was excluded. The cerebral symptoms could then be best explained on the basis of a severe toxic state. As to the cardiovascular angle in this case, the patient might have had a subacute bacterial endocarditis engrafted on an old luetic heart. However, the patient apparently had had adequate and early treatment for lues which resulted in a negative Wassermann. Of course, there was a history of hypertension of three years' duration, moderate cardiac enlargement, and evidence of peripheral and fundal arterial sclerosis. The systolic murmur and electrocardiographic findings of severe myocardial changes, including early bundle branch block, would be on an arteriosclerotic basis. However, miliary cardiac involvement is a possibility, too.

DR. HARRY A. SOLOMON: The indication of some renal pathology, the cerebral manifestations, the intermittent fever, and the heart murmur should suggest subacute bacterial endocarditis.

DR. ARNOLD KOFFLER: The acute phase of the disease of such short duration and the chronic history of as long as three years both seem inconsistent with the diagnosis of subacute bacterial endocarditis. The cerebral symptoms were minimal and of comparatively short duration. The clubbing of the fingers was questionable. There were no definite signs of renal failure.

DR. HARRY A. SOLOMON: A blood nonprotein nitrogen of 47 mg. per cent is above normal for our laboratory.

DR. HENRY C. FLEMING: It seems to me that the tenderness under the left costal margin could have been caused by splenic infarctions, which would tend to corroborate the diagnosis of subacute bacterial endocarditis. Also, we may find that a luetic aortitis is present.

DR. MAX TRUBEK: On reading over the case history I did not think of subacute bacterial endocarditis as a possibility. This patient must have had a calcific aortic lesion, probably on the basis of an old rheumatic valvulitis, in view of the suggestive previous history of rheumatic fever. The heart lesion, I believe, was not related to the present illness. The relatively low specific gravity, the enlarged prostate, and other urinary findings might have suggested a chronic pyelonephritis with terminal uremia. Miliary tuberculosis might explain the picture. The x-ray of the lungs in this case is of little help. It has been our experience that Negroes who continue to run a fever with leukopenia often have miliary tuberculosis.

DR. EMANUEL APPELBAUM: My impression is that this is an instance of generalized miliary tuberculosis. I believe that the patient's cardiac condition is unrelated to his terminal illness. This type of course is not unusual for a case of chronic pulmonary tuberculosis terminating in a

Medicine and the War

Enrollment of Hospital Personnel in Citizens Defense Corps

ON NOVEMBER 9 Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense, released a "Circular" (Medical Series No. 34) on recent regulations for the enrollment of hospital personnel in the U.S. Citizens Defense Corps.

The text of the circular follows:

"This Circular, which presents the Office of Civilian Defense policy covering the enrollment of hospital personnel in the Citizens Defense Corps under the provisions of Office of Civilian Defense Regulations No. 3, revised August, 1943, is intended for the guidance of Commanders, Chiefs of Emergency Medical Service, and hospital administrators.

"Certain hospital personnel may be enrolled in the following Units of the Citizens Defense Corps provided all requirements regarding eligibility, registrations, training, appointment, and oath, as set forth in the Regulations, are met.

"*Medical Unit:* Persons who have duties related to the care of casualties and who are expected to report and work at the hospital as volunteers on an air raid alert.

"*Nurses' Aides Unit:* Volunteer Nurses' Aides.

"*Other Units:* Persons who have specific assignments related to the maintenance of hospital services or to the protection of hospital personnel, buildings, or grounds who are expected to report and work as volunteers on air raid alerts. Such persons should be trained for and enrolled in appropriate Units of the Citizens Defense Corps (Air Raid Wardens, Fire Guard, Communications, Emergency Welfare, Utility Repair, etc.).

"Provision for the movement of other essential hospital personnel during restricted periods can be made by the local Defense Council through appointment of such personnel to the Civilian Defense Auxiliary Group. (Operations Letter No. 37 and supplements.)

"Registered trainees for and enrolled members of all Units of the U.S. Citizens Defense Corps are eligible for War Civilian Security benefits if injured in the performance of official duties. 'Performance of official duties' includes activities at the time of an air raid alert, activities undertaken in training, drills, and exercises approved in accordance with Office of Civilian Defense Regulations No. 3. Revised August, 1943, and going to and from posts of duty in connection with such activities."

Health and Medical Committees Urged to Assist with Wartime Health Problems

MEDICAL advisory councils organized in the developmental period of civilian defense as part of the Emergency Medical Service of local defense councils should merge with health and medical committees of the Civilian War Services branch of defense councils, a recent pamphlet issued by the Office of Civilian Defense recommends. In addition to advising the Chief of Emergency Welfare Service, the committee should support the health officer and serve as a means of mobilizing community support for meeting health problems.

The purposes of the health and medical committees suggested in the pamphlet, entitled "Health Service in Wartime," are: (1) development of adequate wartime coordinated health programs in each community and (2) the building up of citizens' understanding and participation.

Membership in the committee should include the local health officer, the local Chief of Emergency Medical Service, and representatives of the local welfare and education departments, of the medical and nursing professions, of organized labor and industry or farming, and of the voluntary health and social agencies, parent-teacher associations, and civic groups.

It is recommended that the health and medical committee of a local defense council act as a steering committee for functional subcommittees. Because health and medical problems vary greatly among communities, the pamphlet does not present a blueprint for subcommittee organization and work. It does, however, list examples of the problems that face many communities in wartime and suggests how the health and medical committee may assist in solving them. It is emphasized that the work of the health and medical committee should not duplicate or interfere with the activities of other agencies; if an adequate working group has been established in any health field, it should be requested to serve as the appropriate subcommittee.

Among the suggested health and medical problems which the program of the health and medical committees of defense councils might include are: communicable disease control; maternal and child health, including school health programs, health of young workers, and day care for children of working mothers; accident prevention; nutrition and conservation of essential foods; environmental sanitation; provision of medical and nursing care, and the use of volunteers in health programs.

OCD Issues Manual on Emergency Care of Injured

THE immediate care that can be given to injured persons at the site of a disaster and technics of transporting them to safety and medical attention are described in a new manual issued by the Medical Division, Office of Civilian Defense. The work is based on procedures and organization developed by the OCD and careful study of three years of British and other air raid experience.

The 117-page book is divided into three parts: "Civilian Defense," "Emergency Field Care," and "Transportation of the Injured." Part I describes the organization and operation of the field casualty service developed by the Medical Division, which includes mobile medical teams, based on hospitals wherever possible; express parties, made up of a medical team, a rescue squad, an ambulance, and a car for sitting cases, dispatched through the control center to a disaster for immediate action; casualty stations for the care of casualties with minor injuries; stretcher teams, and ambulances.

Part II includes a discussion of the injuries and conditions most frequently encountered in wartime disasters—namely, hemorrhage, shock, fractures, burns, suffocation, and carbon monoxide

Honor Roll

Medical Society of the State of New York

Member Physicians in the Armed Forces

Supplementary List

The following list is the thirteenth supplement to the Honor Roll published in the December 15, 1942, issue. Other supplements appeared in the January 1, January 15, February 15, March 1, March 15, April 15, June 1, July 1, August 1, September 1, October 15, and November 15 issues.—*Editor*

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EVOLUTION OF PREPAID MEDICINE

The New York County Medical Society, having gone on record in opposition to the Wagner-Murray-Dingell bill for compulsory Federal health insurance, approved a statement advocating nonpolitical cooperation between the medical profession and local government "to take care of the low-income groups." Now we, too, believe that the bill makes a wrong approach to the problem of medical care, but we believe in nonpolitical cooperation of the medical profession with the great mass of its prospective patients, not just the "low-income group." Opportunity to prepay medical care and to take advantage of the spread-the-cost principle of insurance should be recognized as not merely a desirable objective but a necessary objective, and not for the few but for the great middle class of the nation.

The New York Society also asserted its confidence in the system of medical care developed under free enterprise "with adjustments in that system to meet changing conditions by an orderly process of evolution as opposed to revolution." But no adjustments are being made merely by opposing the Wagner bill; with opposition, negation, must go some constructive proposal, some better program for attaining the same objective.

This is a problem for doctors; the leadership should come from them if the control is to be left to them. It has come—from individual doctors—but they have, in general, been held back and hampered by the medical associations. (The trouble with the associations is that even evolution has got ahead of them.) It has come in hospital association plans now making prepaid hospital care a reality in this and other cities. It is coming rapidly on the west coast where, convinced by the pioneering leadership of Dr. Sidney Garfield, a committee of physicians has launched a plan to give to the 7,000,000 citizens of California voluntary prepaid medical care along the lines which Dr. Garfield has demonstrated at several public works projects and is now demonstrating on a larger scale at Kaiser plants. It will come still more rapidly, says Henry Kaiser, whose moral and financial support it has in unstinted measure, when the younger doctors, conditioned to first-class cooperative medicine in the armed forces, come back to civilian practice.

Surely it is time for the doctors banded together for the highly commendable purpose of keeping medical standards high to catch up with evolution and to couple their opposition to dangerous proposals with support for constructive ones.—*Reprinted with permission of the N. Y. Herald Tribune*

Medical News

A.M.A. Council on Medical Service and Public Relations Issues Statement of Policies*

PURSUANT to carrying out the duties imposed on it by the House of Delegates, the Council has adopted the following general policies:

1. The Council on Medical Service and Public Relations recognizes the desirability of widespread distribution of the benefits of medical science; it encourages evolution in the methods of administering medical care, subject to the basic principles necessary to the maintenance of scientific standards and the quality of the service rendered.

It is not in the public interest that the removal of economic barriers to medical science should be utilized as a subterfuge to overturn the whole order of medical practice. Removal of economic barriers should be an object in itself.

It is in the public interest that the standards of medical education be constantly raised, that medical research be constantly increased and that graduate and postgraduate medical education be energetically developed. Curative medicine, preventive medicine, public health medicine, research medicine, and medical education, all are indispensable factors in promoting the health, comfort, and happiness of the nation.

2. The Council through its executive committee and secretary shall analyze proposed legislation affecting medical service. Its officers are instructed to provide advice to the various state medical organizations as well as to legislative committees concerning the effects of the proposed legislation. It shall likewise be the duty of its officers to offer constructive suggestions to bureaus and legislative committees on the subject of medical service.

3. The Council approves the principle of voluntary hospital insurance programs but disapproves the inclusion of medical services in those contracts for the reasons adopted by the House of Delegates at the 1943 meeting.

4. The Council approves voluntary prepayment medical service under the control of state and county medical societies in accordance with the principles adopted by the House of Delegates in 1938. The medical profession has always been very much opposed to compulsory health insurance because (1) it does not reach the unemployed class, (2) it results in a bureaucratic control of medicine, and interposes a third party between the physician and the patient, (3) it results in mass medicine which is neither art nor science, (4) it is inordinately expensive, and (5) regulations, red tape and interference render good medical care impossible. Propaganda to the contrary notwithstanding, organized medicine in general, and the American Medical Association in particular have never opposed group medicine, prepayment or non-prepayment, as such. The American Medical Association and the medical profession as a whole have opposed any scheme which on the face of it renders good medical care impossible. That group medicine has not been opposed as such is evidenced by the fact that there are many groups operating in the United States which have the approval of the medical profession, and members of these groups are and have been officials in the national and state medical organizations. That group medicine is the Utopia for the whole population, however, is not probable. It may be and possibly is the answer for certain communities and certain industrial groups if the medical groups are so organized and operated as to deliver good medical care.

5. The Council believes that many emergency measures now in force should cease following the end of hostilities.

6. The Council believes that the medical profession should attempt to establish the most cordial relationships possible with allied professions.

7. There is no official affiliation between the Americal Medical Association and the National Physicians Committee. However, since it is the purpose of the National Physicians Committee to enlighten the public concerning contributions which American medicine has made and is making in behalf of the individual and the nation as a whole, it is the opinion of the Council that the medical profession may well support the activities of the National Physicians Committee and other organizations of like aims.

8. American medicine and this Council owe a responsibility to our colleagues who are making personal sacrifices to answer the call of the armed forces. Therefore, the Council expresses the desire to cooperate with the medical committee on postwar planning in order to assist our colleagues in re-establishing themselves in the practice of medicine, and in the preservation of the American system of medicine.

Purposes and Functioning of Council on Medical Service and Public Relations of the A.M.A.†

THE Council was authorized by the House of Delegates of the American Medical Association at its annual session in Chicago in June, 1943. The members of the Council were immediately appointed by the Board of Trustees. Section 4 of Chapter IX of the By-Laws provides that the duties of the Council shall be as follows:

"(1) To make available facts, data, and medical opinions with respect to timely and adequate rendition of medical care to the American people;

"(2) to inform the constituent associations and component societies of proposed changes affecting medical care in the nation;

"(3) to inform constituent associations and component societies regarding the activities of the Council;

"(4) to investigate matters pertaining to the economic, social, and similar aspects of medical care for all the people;

"(5) to study and suggest means for the distribution of medical services to the public consistent with the principles adopted by the House of Delegates; and

"(6) to develop and assist committees on medical service and public relations originating within the

* This statement was released by the A. M. A. on October 20.

† This statement was released by the A.M.A. on November, 22

poisoning. There are chapters on the principles of bandaging, with detailed illustrations; marking of casualties and disposal of the dead; methods of blanketing a casualty, and methods of lashing a casualty to a stretcher.

Special attention is given to crush and blast injuries. Crushing wounds may result from falling masonry, girders, beams, or whole floors dislodged by bomb explosions. Although these injuries may be immediately fatal, casualties often show little sign of injury when released, the manual points out. Their condition may appear good for a few hours and yet they may die of kidney failure several days later. Directions for first aid are included, and workers are warned that any person "who has been trapped by debris which has pressed on any part of the body must be regarded as a serious casualty." The importance of administering by mouth abundant quantities of fluids and alkalies (sodium bicarbonate) is stressed.

Persons exposed to blast from high explosives may also suffer serious internal injury without external evidence of it. The manual urges all persons concerned with the handling of casualties to "suspect blast injuries in every person found near the site of a bomb explosion, expecially those who have obviously suffered injury and yet show no external evidence of it."

More extensive discussions of these two types of injury are included in the recent OCD publication, "Clinical Recognition and Treatment of Shock."

The section of the manual devoted to transportation of the injured describes regular and improvised stretchers and gives directions for stretcher bearing, with a separate section on types of injury that require special care in moving. Another chapter explains methods of carrying the injured without stretchers, and the final chapter explains the ambulance service of the civilian defense organization and presents specific instructions for loading and unloading ambulances. The latter instructions describe procedures required if war gases are encountered.

The manual is intended primarily for the training of rescue workers, medical auxiliaries, ambulance drivers and attendants, and stretcher bearers of the Emergency Medical Service. In the appendix are a schedule of training based on the manual; the OCD Operations Letters describing the work of stretcher teams, the Rescue Service, and instructions on self-aid in case of exposure to war gas; and a section on electrical hazards.

"Doctors at War" to Be Resumed

ARRANGEMENTS have been completed with the National Broadcasting Company to resume the series of broadcasts entitled "Doctors at War." This will be the fourth series of broadcasts under the general title of "Doctors at Work" and will be the ninth annual series of dramatized health programs presented cooperatively by the American Medical Association and the National Broadcasting Company. Owing to radio commitments in connection with the war, the opening of the series has been postponed until January 8. Broadcasts will be given on Saturday afternoons at 5 o'clock Eastern War Time. The series will run for twenty-six weeks. The Medical Department of the United States Army and the Bureau of Medicine and Surgery of the United States Navy have agreed to permit doctors in the armed forces to participate in the programs. The medical departments of both the Army and the Navy will assist in the technical preparations for the broadcasts.

Announcement

1944 ANNUAL MEETING

Medical Society of the State of New York

The 138th Annual Meeting of the Medical Society of the State of New York will be held Monday, May 8, to Thursday, May 11, 1944, inclusive, at Hotel Pennsylvania in New York City.

COUNCIL COMMITTEE ON CONVENTION

McGoldrick Addresses First District Branch Meeting

DEATH rates will increase and health standards will be lowered if the Wagner-Murray Bill, now before Congress, becomes law, Dr. Thomas A. McGoldrick, president of the Medical Society of the State of New York, warned on November 16, in an address at the luncheon session of the thirty-seventh annual meeting of the First District Branch of the Society, at Grasslands Hospital in Valhalla.

The speaker described the proposed legislation as "the final word in socialization of medicine in its aims, comprehensiveness, huge sums of money involved, and in the absolute dictatorial powers of its administrator."

During the past twenty-five years under the existing system of private practice, death rates for most diseases have been sharply reduced and the lowest death rate in history—10.3 per 1,000 population—was reported last year, Dr. McGoldrick said.

He added: "If the medical plans proposed in the name of social security will do more for the people than the present method of distribution of services, then by all means let us have them. Doctors know, however, that by such methods as are proposed in this bill the quality of medical service will be greatly lowered. They know what has happened in other countries in the increase of time lost in sickness, absenteeism, advancing death rates, lowered standard of health, in bureaucratic influence, and the impairment of medical standards. It is an insurance plan for sickness, not for health.

"To the administrator—whoever may be the surgeon general of public health—although he may never have engaged in the treatment and care of an individual patient, is given the power to hire all doctors and fix their pay in every locality; establish the qualifications of specialists; determine the number of individuals for whom a doctor may provide service; determine arbitrarily what hospitals or clinics are acceptable and what they shall be paid for services; he will, on his own authority, award grants to the sum of 48 million dollars a year for education and research; he will have at his disposal a sum estimated at three and one-quarter billion dollars yearly; the sum of money for the administration of the law alone is estimated at 600 million dollars."

Pointing to the progress made in the past under the stimulus of individualism in preventive and curative medicine, and the steady stream of new discoveries coming from the research laboratories, Dr. McGoldrick deplored a system under which all doctors would be officeholders in a government bureaucracy.

"These steps in progressive science," he continued, "we shall surely lose in government-controlled care of the sick. Government could never provide the ambition, the sacrifice, the complete devotion to one's fellow man as the ideal professional man has it and which make possible these advances. The people, rightly informed of the benefits of present-day medicine and the dangers to them when its existence is jeopardized, will not approve."

Scientific sessions preceded and followed the luncheon meeting at which Dr. McGoldrick spoke. The morning program was as follows: "Evaluation of Prostatic Obstruction," Dr. Frederick McLellan, of New York City; "Discussion of Surgical Conditions Within the Spinal Canal," Dr. Wilfrid D. Wingebach, of Bronxville; "Supra-Condyle Fracture in Children," Dr. Win Henry Watters, of White Plains, orthopedic surgeon, Grasslands Hospital; "Thoracic Surgery—Application in General Medicine," Dr. George C. Adie, of New Rochelle, director of surgery, Grasslands Hospital.

The afternoon session included the following lectures by members of the Grasslands Hospital medical staff: "Extra Human Poliomyelitis," Dr. Gilbert Dalldorf, director of laboratories; "Diagnosis and Chemotherapy of Meningococci and Other Forms of Meningitis," Dr. Horace E. Robinson, of Pleasantville, attending physician, communicable diseases; "Application of Functional Tests in Treatment of Liver Disease," Dr. Reid R. Heffner, of New Rochelle.

Second District Branch Meeting

THE annual meeting of the Second District Branch of the Medical Society of the State of New York was held at St. Albans Hospital, St. Albans, Long Island, on November 17.

It is estimated that more than 350 physicians attended the morning and afternoon sessions, which included a scientific program. This was a record attendance.

The meeting was conducted with a surplus of funds, and this sum was donated by the Second District Branch to the St. Albans Chapter of the American Red Cross.

J.A.M.A. Says Figures Published on Physicians' Incomes Are Guesses*

RECENTLY widely published figures on the average gross and net incomes of physicians are little more than guesses, the *Journal of the American Medical Association* for November 20 points out.

The *Journal* says:

"The U.S. Department of Commerce recently issued a release on the incomes of physicians of which the following sentence has been widely published and discussed: 'The average gross income reported for 1941 was $8,524, and the average net income, $5,047.' Analysis of the methods by which these figures were obtained reveals that they are little more than guesses. The full report of the study on which they are based is printed in the 'Survey of Current Business,' issued by the Bureau of Foreign and Domestic Commerce of the U.S. Department of Commerce, October, 1943, pages 16 to 20. From this we learn that 'questionnaires were sent to a representative sample of physicians who were requested to give information relating to gross and net incomes, costs of practice, age, type of practice, employees, pay rolls, and other selected items during the period from 1936 through 1941.' A total of 1,898 returned questionnaires were used, about 1 per cent of the 180,496 physicians reported in the American Medical Directory for 1942, when the survey was made. One hundred of these questionnaires from the Southwest were excluded because of 'a strong bias . . . in the sample from Texas.' For apparently the same reason the

* We published this release in the December 1, 1943, issue, page 2322.—*Editor.*

constituent associations and component societies of the American Medical Association.

"In the exercise of its functions, this Council, with the cooperation of the Board of Trustees, shall utilize the functions and personnel of the Bureau of Legal Medicine and Legislation, the Bureau of Medical Economics, and the Department of Public Relations in the Headquarters Office."

The Council is also bound by the actions of the House of Delegates on the subject of medical care and its distribution, notably the platform adopted in 1937 as amended and amplified in subsequent years by the various resolutions and reference committee reports adopted by the House of Delegates.

In order to carry out these functions, the Council has organized as follows:

Organization

Officers.—The Council shall elect annually: a chairman; a vice-chairman; a full-time secretary.

An executive committee of three shall be created, which shall include the Chairman, the Council member of the Board of Trustees, and a third member to be chosen annually from the duly appointed or elected members of the Council on Medical Service and Public Relations. This committee shall exercise such functions as are delegated to it by the Council.

The central office of the Council is to be located in the office building of the American Medical Association in Chicago, Illinois.

The functions of the Council outlined in the By-Laws are closely integrated and cannot well be considered separately. To carry them out it is obvious that the Council must have adequate sources of information, maintain close contact with constituent associations and component societies, and establish close relationship with the already existing Bureaus and Departments of the Association.

The Council, therefore, subject to the approval of the Board of Trustees, has decided on the following methods of operation:

1. In carrying out the directive in the By-Laws as to relationship with the other Bureaus and Departments of the Association, the Council has established close collaboration (*a*) with the Bureau of Medical Economics, which has been asked and has expressed the willingness to do the research on many of the economic problems necessary for the Council's study, and which is well equipped to carry out such research; (*b*) with the Bureau of Legal Medicine and Legislation. Joint bulletins will be issued with that Bureau on legislative matters. Attempt will be made to effect wider distribution and, if necessary, more frequent publication of such bulletins; (*c*) with the Department of Public Relations. The Council shall utilize the sources of information of this department and joint bulletins may be issued from time to time with it, and if indicated with other bureaus of the American Medical Association. All planning will be to avoid overlapping of functions and duplication of effort.

2. The Council on Medical Service and Public Relations has extended the sources of information of the American Medical Association on problems with which the Council is specifically concerned. Through its membership and by cooperation with constituent associations and component societies and the utilization of other facilities, the Council will disseminate such information toward effecting its objectives. The Secretary of the Council, with its approval, will undertake take such travel as may be necessary.

3. In order that constituent associations and component societies may be kept informed of the activities of the Council, and of proposed changes in the status of medical care, and that the Council may be of assistance to those associations and societies, the Council has requested each State Association to designate an existing committee or create a new committee to function with the Council on a State level.

Each State organization has also been requested to contact each component society in the State and ask it similarly to designate or form a committee to function in connection with the programs of the Council. Where such organization is feasible, it has been suggested that committees be created along the lines of congressional districts.

Such State and county committees have been urged to keep the Council informed of their local problems and activities.

State organizations also will be requested from time to time to conduct experiments in the various methods of medical care and to inform the Council of their results so that the Council may study and evaluate the experiments and transmit the information acquired to all concerned.

4. The Council feels that under its directive it is its duty to endeavor to evolve such modifications of our present system of medical care as may be necessary to cover all the people and be in accord with the traditions of American Medicine as to high standards of medical care and the American tradition of free enterprise as already outlined in paragraph 1 of the Council's Policies previously published. To accomplish this, study must be made of all economic, social, and similar aspects of such care.

5. In order that the above program may be effectively carried out, the Secretary of the Council, with the guidance of the Council in conformity with the above expressed relationships with other Bureaus and Departments, shall inform the profession through the various State organizations of all pending national legislation and bureau directives affecting the practice of medicine. It shall likewise be his duty with the guidance of the Council, to arrange for medical representation at meetings and hearings pertaining to medical care, collaborating in the representation with other Councils and Bureaus of the American Medical Association who have an interest in this same subject.

6. The Secretary is instructed with the supervision of the Council, and in collaboration with the Department of Public Relations, to disseminate information concerning the activities of the Council through the publications of the American Medical Association and the various state medical journals, and to prepare and release information on medical care.

The Council has already issued its Statement of General Policies, and it will act in accordance with those Policies and the above methods of functioning.

A coauthor of the Wagner-Murray-Dingell bill, a physician, a manufacturing executive, and a lawyer discussed the bill in a meeting of the county society held on November 17.

The speakers were U.S. Senator James E. Murray, of Montana, coauthor of the bill that would revolutionize medical practice; Dr. Louis Bauer, of Hempstead, chairman of the Council of Medical Services and public relations director for the American Medical Society; Marion B. Folsom, of Eastman Kodak Company, and cochairman of the county's postwar planning council; and Charles S. Wilcox, president of the Rochester Hospital Service Corporation. They discussed social trends of today as they are related to the practice of medicine and to hospital insurance, and the future position of medicine. Dr. G. Kirby Collier, president of the Monroe County Medical Society, conducted the meeting.*

Nassau County

A regular monthly meeting of the county society was held at 9:00 P.M. on November 30, in the Mercy Hospital Auditorium in Rockville Centre.

The scientific session featured the following topics and speakers: "Obstetric and Pediatric Care for Soldiers' Families," by Philip J. Rafle, M.D., of the New York State Department of Health; a symposium on the distribution of medical care, including "Labor Looks at Medicine," by Nathan Kobrin, D.D.S., vice-chairman of the Health Council of the American Labor Party; and "Medicine Examines Itself," by Louis H. Bauer, M.D., chairman of the Council on Medical Service and Public Relations of the American Medical Association.

Oneida County

There were two speakers at the meeting of the Utica Academy of Medicine held on November 18. Dinner was served preceding the meeting.

Dr. Edward Charles Hughes, professor of obstetrics, medical department, Syracuse University, spoke on "Caesarian Section." The discussion of Dr. Hughes' paper was opened by Dr. Keith B. Preston.

Dr. T. Wood Clarke read a paper on "Pediatric Facts and Fallacies."*

Orange County

Dr. Laurance D. Redway, of Ossining, literary editor of the NEW YORK STATE JOURNAL OF MEDICINE, was guest speaker at a luncheon meeting of Newburgh Rotary Club in the Palatine Hotel on November 2. He discussed the proposed Wagner-Murray bill dealing with socialized medicine. Since there has been wide interest in this topic, the club extended an invitation to any interested persons to be guests at the meeting.*

Richmond County

Army doctors, Capt. K. F. Mech and Capt. J. J. Foster, both of Halloran General Hospital, Willowbrook, addressed a meeting of the county society on November 10 in the Richmond Health Center, St. George.

The Army men discussed the use of penicillin in surgery and the recognition and treatment of tropical diseases.

The society went on record as endorsing the year's program of the Staten Island Tuberculosis and Health Association and welcomed back, to Island practice Dr. Joseph Wisnefski, of Port Richmond, recently discharged by the Army after service in North Africa. Dr. D. V. Catalano presided.*

Schenectady County

The annual meeting of the county society was held in the Mohawk Gold Club in Schenectady on December 2.

Dinner was served at 7:00 P.M. The entertainment which followed was an address by Mr. Michael MacDougall, known as "the card detective," who told of his adventures in tracking down sharpers who cheat at cards, dice, and other games.

A list of officers elected at the meeting will be published in a later issue.

Steuben County

The Steuben County Medical Society held its annual meeting Thursday, November 11, at the Steuben Hotel in Bath.

Luncheon and election of officers preceded a talk by Forrest Young, M.D., assistant professor of surgery at the University of Rochester School of Medicine and Dentistry, on "Early and Late Care of Burns."

The list of officers will appear in a later issue.

Suffolk County

Dr. Emma L. Bellows, New York physician, has moved to Southampton to reside permanently. She has leased Mrs. C. Elmer Smith's house at 319 Hampton Road and will conduct her practice from there daily except Wednesday, Thursday, and Sunday, from 3.00 to 6:00 P.M. She will be at her New York office on Wednesday and Thursday by appointment.

* * *

Approximately 30,000 letters containing package labels have been mailed to families throughout Suffolk County, according to an announcement made by Dr. Charles C. Murphy, of Amityville, chairman of the Suffolk County Cancer Committee. Through the sale of the labels the Committee plans to carry on its program of cancer control in 1944.

Dr. Murphy, in urging support of this service, which has been carried on for fourteen years, said, "For next year greater service is demanded and has been planned, since conditions today impose greater duties. The work of the committee is twofold: educational, through distribution of literature, showing of motion pictures, and exhibits; direct and personal, through its social service work and financial aid given to patients in need of x-ray and radium therapy."

The County Department of Health and the Suffolk County Medical Society cooperate with the Cancer Committee.*

Westchester County

Wilfred S Spear, of Yonkers, was re-elected president of the New York State Society of Medical Masseurs for his fifth term at the society's annual convention at the Hotel Times Square, New York City, on November 7.

Robert Fawkes, also of Yonkers, was elected to the board of directors, and Ulrich Wiesendanger, former mayor of Yonkers, was guest speaker at the meeting.*

* * *

The following resolution on the Wagner-Murray-Dingell Bill was adopted unanimously by the Medical Society of the County of Westchester,

returns from Illinois, Indiana, and Michigan were not included. There is no explanation of the method by which the sample was selected or any proof that it was representative. It is admitted that there were 'special difficulties arising from the impracticability of obtaining a full representation of those of the younger doctors who were withdrawn from independent practice into the armed forces prior to the summer of 1942,' but this is purported to have been allowed for by 'weighting.' In the summary table, returns from only twenty-one states are listed. Among those omitted, in addition to those previously mentioned, are Florida, North Carolina, South Carolina, Tennessee, Minnesota, Missouri, and Wisconsin. On this very small foundation, nevertheless, is built an inverted pyramid of deductions, conclusions, diagrams, and classifications based on income by age, localities, size of city, and gradation of income, all given to the final dollar or to a decimal fraction, which gives a semblance of accuracy which the foundation of facts is entirely too slight to support."

County News

Albany County

A meeting of the county society was held in the Auditorium of the Albany College of Pharmacy on November 17 at 8:30 P.M.

Dr. R. A. Bendove, clinical professor of medicine, Long Island College of Medicine, Brooklyn, gave the scientific program, which was an address entitled "Diagnostic Pitfalls in Diseases of the Chest."

Discussion of the paper was opened by Drs. L. W. Gorham, Fred C. Conway, R. J. Erickson, and Adrian A. Ehler.

• • •

On November 8 Dr. Joseph S. Lawrence, Executive Officer of the Medical Society of the State of New York, addressed a meeting of the Delmar Progress Club on the Wagner-Murray-Dingell Bill.*

Bronx County

At a dinner given on November 7, Dr. Thomas Hayes Curtin, president of the Bronx Interfaith Council and chairman of the executive committee of the Bronx Eye and Ear Infirmary, was presented with the Good Citizen Award for 1943 of the Bronx Council of the American Jewish Congress, in the form of a plaque.

The presentation was made by Rev. Henry A. Schorr, spiritual leader of Temple Adath Israel, who explained that it was awarded in recognition of Dr. Curtin's unflagging labors for the advancement of better understanding between men of all faiths and for inter-racial good will.

The toastmaster of the occasion, Isidor Teitelbaum, president of the Bronx Council of the American Jewish Congress, said that Dr. Curtin was not being honored for what he has done so much as for what he is and for what he represents.

Dr. J. Stanley Kenney, president of the Medical Society of the County of New York, and Dr. Frederick Williams, president of the Bronx County Medical Society, both lauded Dr. Curtin for his services to mankind, both as a physician and as a civic worker.*

Chemung County

The annual get-together of the Chemung County Medical and Dental Societies was held on December 1 in the Mark Twain Hotel in Elmira.

An informal dinner was served at 7:00 P.M., following which the Honorable W. Sterling Cole and State Senator Chauncey Hammond addressed the gathering.

Fulton County

The monthly meeting of the county society was held on November 10 at Ward Nixon's Hotel at Pine Lake. After dinner, the business session was called to order by the president, Dr. Arthur Wilsey.

Dr. S. C. Clemans, chairman of the legislative committee, presented the provisions of the Wagner Bill. Dr. Avery Sarno led the discussion which followed. The society went on record as opposing the bill because it places in the hands of one man, the surgeon general of the Public Health Service, dictatorial power over the medical and dental professions and also all hospitals, both government owned and private, at an estimated annual cost of at least $3,000,000,000.*

Jefferson County

At the annual meeting of the county society, held on November 11, the following officers were elected: president—Dr. Leon L. Samson, 42 Church Street, Alexandria Bay; vice-president—Dr. Harlow G. Farmer, 120 Stone Street, Watertown; secretary—Dr. Charles A. Prudhon, 168 Sterling Street, Watertown; treasurer—Dr. Lawrence E. Henderson, 129 Clinton Street, Watertown; censors—Drs. Sutherland E. Simpson, 1240 Coffeen Street, Watertown; Earl E. Babcock, Adams Center; F. R. Calkins, 114 Stone Street, Watertown; Harold L. Gokey, Alexandria Bay; and James E. McAskill, 508 Woolworth Building, Watertown; delegate to the State Society—Dr. Charles A. Prudhon, 168 Sterling Street, Watertown; alternate delegate—Dr. Harlow E. Ralph, Belleville; delegate to the Fifth District Branch—Dr. John T. Fowkes, Jr., Clayton; alternate delegate—Dr. Norman L. Hawkins, Woolworth Building, Watertown.

CHARLES A. PRUDHON, M.D.

Kings County

Assistant District Attorney John E. Cone, Jr., chairman of the speakers committee for the Kings County National War Fund Drive, addressed a meeting of the Kings County Medical Society on November 16.*

Monroe County

The annual dinner meeting of the County Health Committee of the Tuberculosis and Health Association was held on November 9, at 6:15 P.M., at Howard Johnson's at Twelve Corners, Brighton.

Dr. Benjamin J. Slater was the chief speaker of the evening. His subject was, "Public Health Looks Ahead." Dr. Slater is chairman of the Public Health Committee of the Medical Society of the County of Monroe and vice-president of the Tuberculosis and Health Association.

John C. Malloch, chairman of the County Health Committee, presided. Reports of the work of the Association in the communities throughout the county were given and campaign supplies were distributed to each chairman.*

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* Asterisk indicates that item is from local newspaper.

Hospital News

British and American Military Hospitals Pool Doctors and Patients

THE work of British and American medical officers is so closely interwoven that there is a complete exchange of staff and patients between institutions operated by the two nations in Great Britain.

"When a British doctor spends a month in an American hospital, or an American eye specialist works in a British hospital, they are not merely observers. They take over the full responsibility of the men they replace," explains Lt. Col. John Douglas of the British War Office.

At an American hospital turned over to the U.S. Army by the British government through reverse lend-lease agreement, more than 50 per cent of its present patients are British. Recently, it received a whole convoy of wounded from North Africa irrespective of nationality. This hospital was originally built by the British Ministry of Health for bomb victims, who never materialized.

When it was turned over to the U.S. Army last winter, it had been enlarged from a 600-bed to a 1,000-bed hospital by the addition of Nissen hut wards.

The British War Office has started fortnightly tours of inspection of the British and American hospitals for officers of both armies.—*The Modern Hospital*

Hospitals Aid Drive for Practical Nurses

THIRTEEN free refresher courses for practical nurses have been established in metropolitan New York hospitals as the first step in a drive to enlist 25,000 additional qualified women in New York State, Dr. Beeckman J. Delatour, chairman of the Committee for the Education and Recruitment of Practical Nurses, announced on November 26.

Dr. Delatour, a fellow of the New York Academy of Medicine, reported that the committee, composed of members of the medical and nursing professions and of interested laymen, is seeking to standardize training for practical nurses, "who will be just as important after the war as they are now."

Arrangements are in progress to set up practical nursing schools in parts of the State where no such facilities are now available, he said. The committee, with offices at 250 West Fifty-seventh Street, New York City, is cooperating on this project with the National Nursing Council for War Service and with local hospital authorities.

The drive for practical nurses, whose nine-month course enables them to care for most cases of nonacute illness, has been endorsed by the Committee on Public Health Relations of the New York Academy of Medicine and by the House of Delegates of the Medical Society of the State of New York.

Women wishing to enter this field must be between the ages of 18 and 50, elementary school graduates, and in good health. Their training includes both classroom and laboratory work.

New York Hospital Fund Approximates Total Needed

ON NOVEMBER 26 the Campaign Committee of the United Hospital Fund of New York and the Visiting Nurse Association of Brooklyn reported that the amount raised to that date in the sixty-fifth annual campaign was $1,335,000, the total from 25,000 individual gifts.

The sum of $24,100 was raised from coin-box collections made during two days of annual Hospital Week, observed this year from October 17 to 23.

This amount is almost twice that received last year from this source.

The total sum needed for the Fund this year has been set at $1,457,120. The campaign, which opened the last week in September, will continue until the end of 1943.

Improvements

Col. A. J. Canning, commanding officer at Rhoads General Hospital in Utica, was recently advised that the Masonic War Chest of the Grand Lodge of Masons, State of New York, will furnish ten sun rooms at that institution.

Gay H. Brown, of Utica, senior grand warden of the Masons, is a member of the executive committee of the War Chest, and he made an inspection of the hospital on Burrestone Road several weeks ago. Upon returning to New York City he recommended that the War Chest provide new furniture for six sun rooms.

The Masonic War Chest is financed by the payment of at least $1 from every Mason in the state for the duration of the war, which brings in about $250,000 a year.

Already the chest has furnished service centers at the Rome Army Air Field and Pine Camp, as well as several in New York City and other localities where large numbers of service men are assigned.

Several Utica and vicinity Masonic lodges are also interested in the furnishing of sun rooms at the hospital, but the announcement from the Masonic War Chest is in addition to that activity.*

* * *

A new incubator for infants requiring specialized treatment, and an operating table which can be used for every branch of surgery have been added to the equipment of Yonkers General Hospital.

The new incubator, known as the Davidson Automatic Oxygenated Incubator, provides complete isolation with constant temperature and has every facility for providing necessary nursing care without disturbing or removing the infant from the unit. Other special features, he pointed out, are a built-

* Asterisk indicates that item is from local newspaper.

Inc., at its 146th Annual Meeting, held in White Plains on November 16:

WHEREAS, the medical and hospital sections of the proposed "Wagner-Murray-Dingell Social Security Bill" (*S. 1161; H.R. 2861*) now pending in Congress, would substitute an imported totalitarian system of medical practice for the American system of direct private service, and

WHEREAS, this bill, if enacted, would confer upon the Surgeon General of the U.S. Public Health Service—a federal officer appointed by the President and Congress and not elected by the American people—final and complete authority over the practice of medicine and the operation of the nation's hospitals, in so far as these services relate to the clients of the Social Security System, which would be extended by this same measure to include at least five-sixths of the entire national population, and

WHEREAS, the medical and hospital sections of this bill would destroy the direct personal responsibility of the physician and the privacy of the relationship between the American citizen and his physician, substituting a plan of bureaucratic control and rationing in these private affairs and introducing the factor of politics in medical service, and

WHEREAS, enactment of this bill would abruptly terminate the scores of local and regional plans providing voluntary hospital and medical expense insurance that have been developed during the last decade under cooperative or community auspices, including such progressive and acceptable types of federal assistance in the field of medical care as the medical program of the Farm Security Administration, replacing these voluntary efforts by compulsion, and replacing popular cooperation by political dictation, and

WHEREAS, in view of the amazing progress of medical science in America, in view of the unprecedented standards of health and longevity enjoyed by the American people, in view of the unparalleled efficiency of the nation's voluntary hospital system, in view of the rapid development of new plans for better distribution of hospital and medical care, in view of the achievements that have made the American physician the world's leader in his field, there can be no good reason for proposing a complete revolution in the delivery of medical care to the American people, and

WHEREAS, if these provisions are enacted, foreign experience with similar plans proves that the character and effectiveness of medical care will most certainly deteriorate to the disadvantage of the American people; therefore be it

Resolved: That the Medical Society of the County of Westchester hereby records its opposition to the medical and hospital sections of the Wagner-Murray-Dingell Social Security Bill, for the following reasons:

1. It would establish complete bureaucratic control over the practice of medicine, with final authority resting in the hands of a single appointed official.
2. It would destroy the individual responsibility of the physician to the patient and violate the privacy of the relationship of physician to patient.
3. It would introduce political control, political preferment, political manipulation into the practice of medicine and the operation of hospitals.
4. It would put an end to all voluntary cooperative efforts such as the plans for medical and hospital expense insurance, industrial hygiene, and preventive medicine which are being promoted by more than 300 local medical societies throughout the country, all of which are designed to improve the distribution or to spread the costs of medical care.
5. It would debase the quality of medical service through the intervention of politics and the consequent loss of professional integrity and independence.
6. It would tax 80 per cent of the people to provide an inferior kind of medical care which a majority of the people will find unacceptable.
7. It is in direct violation of the American principles of personal initiative and voluntary enterprise;

and be it further

Resolved: That the Society urge all voluntary agencies and organizations interested in the development and extension of good medical care to oppose the passage of the medical and hospital sections of the proposed bill; and be it further

Resolved: That copies of this resolution be forwarded to the authors of this bill, to our representatives in both branches of Congress, to the Westchester County Hospital Association and other organizations interested in the public health, and that this action be communicated to the public through the lay press.

Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Max Bakst	54	L.I.C. Hosp.	November 10	Brooklyn
Walter R. Coakley	57	Albany	November 3	Buffalo
J. Mansfield Foster	68	L.I.C. Hosp.	November 15	Valley Stream
Major O. Jones	43	Howard	October 8	Brooklyn
Albert E. Larkin	71	Syracuse	November 2	Syracuse
Murry H. Levine	48	P. & S., N.Y.	November 19	Manhattan
Charles W. Martin	48	P. & S., N.Y.	November 16	Woodmere
John J. Nutt	72	N.Y. Univ.; Cornell	November 16	Manhattan
Harold M. Sachs	42	Temple	October 7	Ridgewood
Armin V. St. George	51	P. & S., N.Y.	November 20	Manhattan
Charles A. Spivacke	66	Cornell	November 22	Manhattan
Sidney W. Thompson	70	N.Y. Univ.	October 29	Owego

Woman's Auxiliary

To the Medical Society of the State of New York

The President of the Woman's Auxiliary's Xmas Message

THE spirit of the season which is in our thoughts and hearts and beings is the age-old spirit of Christmas. It is the time to take account and look for the simple blessings, the wonders of the universe that have been given us just for the acceptance thereof; the sun and the moon and the stars that brightly shine; the wind and the clouds and the sky that give perfection to the world; and the fire and the water and the earth that bestow upon us our very living. Let us meditate within ourselves and single out the humble means for happiness. Does the grace of life and its simple blessings bring us the feeling of Peace On Earth and Good Will Toward Men? One of the Saints told us in prayer, "Lord make us instruments of Thy peace. Where there is hatred, let us sow love; where there is injury, pardon; where there is discord, union; where there is doubt, faith; where there is despair, hope; where there is darkness, light; where there is sadness, joy." These are the undying truths upon which our faith in men is based. Now is the time to share and share alike, with our fellow men all over the world, these lasting ideals and bring them into genuine reality. Let us give unselfishly, sacrifice willingly, and assume contently the richness of these simple blessings. Only by gracious living can we bring good fellowship and harmony into this world of today, a peace that will endure forever. When we have pledged to ourselves that we will steadfastly live our lives with a readiness to accept God's rich gifts, then will we have earned the right to look for security and the freedom of speech, the freedom from want, the freedom from fear, and the freedom of worship. With these thoughts in my heart my Christmas wish to all is like that of Tiny Tim's, "God bless us every one."

EMMA D. SULLIVAN, *President*
(Mrs. F. Leslie Sullivan)

County News

Albany. The November meeting was held at the Hotel Wellington. The guest speaker was Dr. Joseph Lawrence, whose topic was the Wagner-Murray-Dingell bill.

Broome. A luncheon held at the Hotel Frederick in Endicott marked the first fall meeting of the Broome County auxiliary. Mrs. Manuel M. Monserrate, president, named her committees and discussed plans for the current year. Mrs. Goode R. Cheatham spoke on the Nurses' Aides, and Mrs. William Low on the Red Cross Home Nursing course, urging all members to enroll if possible. Mrs. Charles R. Seymour, past president, gave a report on the district convention held in Schenectady.

Columbia. Dr. Sue H. Thompson was the speaker at the last meeting of the auxiliary. Dr. Thompson gave an interesting address on "Wartime Problems of a County Health Commissioner." In many areas, she said, the county health department is the agency to which applications for maternal care for soldiers' wives are sent. The mental and physical health of youth is in the forefront, and health education must be continued. There is the enlarged task of the sanitary engineer in civilian defense. Dr. Thompson stressed the need for increased vigilance in wartime restaurant sanitation. There is the problem of the increased incidence of tuberculosis in the industrial workers, and the great problem of syphilis control. There is also the problem of special contagious diseases seen in this country only within the last two years, and there is the constant vigilance the health commissioner must maintain against tropical and parasitic diseases.

Miss Dorothy Clark and Miss Julia L. Dougher spoke briefly, as did Mrs. William G. Wheeler, of East Taghkanic, commander for Columbia County of the Women's Field Army for the Control of Cancer. At the close of the meeting tea was served by Mrs. Lawrence J. Early, chairman of the program committee.

The November meeting was at Mrs. Early's home. Miss Edith Casey was the speaker. Guests were invited to attend the October and November meetings. At these meetings the Wagner-Murray-Dingell bill was explained and everyone was asked to spread the meaning of the bill to her friends and neighbors, to safeguard the medical profession and the sick people of America.

Erie. At the October meeting a book review was given. The proceeds are to be given to the Physician's Home. The auxiliary members attended the men's meeting to hear Dr. Joseph S. Lawrence, Executive Officer of the State Medical Society, who spoke on "Socialized Medicine."

The auxiliary celebrated its fifth birthday on November 4. The husbands were invited to join the ladies for a dinner party. Mrs. William Rennie is chairman and Mrs. Allen E. Richter is co-chairman.

Herkimer. Mrs. Gertrude Sabin, of Little Falls, explained the Wagner bill for socialized medicine at the East Herkimer Health Committee meeting at the home of Mrs. Roosevelt Manley. Mrs. F. H. Moore, legislative chairman, reported on the Wagner-Murray bill at a meeting at the Frankfort Gorge home of Mrs. B. J. Kelly. Mrs. Kelly entertained the auxiliary members at dinner. Reports were given and three new members were presented.

At a public meeting later a speaker will explain the Wagner-Murray bill to representatives of all area organizations.

Kings. The autumn luncheon meeting was held at St. Bartholomew's Community House, 1227 Pacific Street, Brooklyn. Mrs. Walter Truslow spoke on the subject "Red Cross Needs You Now." Dr. Abraham Koplowitz also spoke at this meeting. Dr. Koplowitz' discussion was entitled, "Is Health Insurance Threatening Us?" Luncheon was followed by the business meeting, Mrs. Allen Hull presiding. Mrs. Edwin A. Griffin is chairman of

in aspirator, stethoscope, and ultraviolet light for air sterilization.

Twelve positions are easily, quickly, and smoothly obtained by the new Hartley General Operating Table, with head-end control by the anesthetist. It has a five-section stainless-steel top, which makes for maximum flexibility.*

. . .

The campaign to raise $250,000 in War Bonds to build an addition to St. Jerome Hospital, Batavia, after the war, opened on November 14. Dr. William D. Johnson, of Batavia, surgeon, is general chairman of the campaign, and Rev. W. C. Kirby, of Batavia, is chairman of the special subscription committee. Dr. Ralph Brancale is chairman for Attica.*

At the Helm

Bruce Barton, president of the advertising firm of Batten, Barton, Durstine & Osborn, Inc., has been elected a member of the boards of the Presbyterian Hospital, Neurological Institute, and the Babies' Hospital.*

. . .

Dr. William W. Wright, superintendent of Marcy State Hospital in Marcy since 1931, has resigned to open a private practice in neurology and psychiatry in Utica.

Dr. George L. Warren, first assistant physician in Marcy State, who has been in charge since October 30, will continue as acting superintendent until the hospital's board of trustees appoints a successor to Dr. Wright.

A native of Philadelphia, New York, Dr. Wright is a graduate of the University of Michigan, class of 1904. He had a year's internship in the St. Alexis Hospital, Cleveland, after graduation and entered the state service in 1906 on the staff of the Buffalo State Hospital, where he remained until 1912.

In that year he was called to the Psychiatric Institute in New York as senior assistant physician under Dr. August Hoch, director of the institute. During the time he held this position, Dr. Wright also was instructor in medicine in the department of psychopathology at Cornell University Medical College. Later he was made chief of the clinic at Cornell.

In 1917 he was appointed acting clinical director of the Manhattan State Hospital, and, a year later, first assistant physician at the Buffalo State Hospital, which post he held until 1924, when he was transferred to Utica.

Dr. Wright was named assistant superintendent of Utica State Hospital in June 1926, and was placed in charge of the Marcy division. In July, 1930, he was appointed superintendent of Pilgrim State Hospital, Brentwood, Long Island, and acting deputy medical inspector.

He assumed duties as superintendent of Marcy State in July, 1931, when the Pilgrim State Hospital became a separate unit instead of a division of the Utica State Hospital.

In 1939, Dr. Wright was in charge of the distribution and the only source of supply in Central New York of sulfapyridine, the new drug to combat pneumonia. The drug was for sale only to those who could offer evidence of qualification to administer and distribute it. Dr. Wright had followed the development of aniline dye derivatives into sulfa drugs for the treatment of illnesses for twenty years.

Dr. Wright has written a number of articles for various psychiatric journals.—*Utica Press*

. . .

Appointment of Lt. Col. Clyde Barney, one time intern in General Hospital and later resident in surgery at St. Luke's Hospital in Utica, as chief of the surgical service at Rhoads General Hospital has been announced by Col. A. J. Canning, commanding officer.

Colonel Barney, a Syracusan, has been chief of the surgical service at Pine Camp Station Hospital since he was called to active duty in 1941. Prior to that, he was professor of clinical surgery at the College of Medicine, University Hospital, Syracuse University.

He began his medical career in 1910, when he was graduated from Syracuse University's College of Medicine and was appointed resident in surgery at St. Luke's in the days of the late Dr. Willis Ford and the late Dr. Judson Kilbourne. After one year in Utica he spent two years at the Mayo Clinic, Rochester, Minnesota, then returned to Syracuse. There he opened a private practice and acted as an instructor in surgery at the College of Medicine.

During the first World War he served with the 26th Division and at a base hospital in France. He was promoted to the rank of major in the Army Medical Reserve in 1924 and to that of lieutenant colonel in 1935. In 1932 he was elevated to the assistant professorship in clinical surgery at the Syracuse College of Medicine, and in 1936 became a full professor.*

Newsy Notes

Hospital pharmacy internships will be standardized and approved on a national basis if the desires of the newly formed American Society of Hospital Pharmacists are carried out. The society, holding its second annual convention in Columbus, Ohio, in conjunction with the convention of the American Pharmaceutical Association, adopted a resolution on this subject and invited the cooperation of the American Hospital Association, the American Medical Association, the American College of Surgeons, and the American Pharmaceutical Association.

The society is a component part of the A.Ph.A. and, therefore, can only take action of this kind with the approval of the parent body.—*The Modern Hospital*

. . .

A meeting of the Northeastern New York Association of Hospital Superintendents was held in Albany in November.

. . .

January 8 has been set as the date of the musical entertainment for the benefit of Highland Hospital in Beacon. Dutchess County musicians will furnish the program. The proceeds from the sale of popular priced tickets will go to the auxiliary of the hospital for the purchase of needed linens and other supplies.*

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hospitality and Mrs. Samuel Zwerling is program chairman.

Nassau. The first fall session was combined with the annual Mental Hygiene Clinic Mrs. Nathaniel H. Robin is mental hygiene chairman

The auxiliary is engaged in an extensive defense program. The president, Mrs. Arthur D. Jaques, entertained the board at a luncheon before the session. A wartime approach to the study of mental hygiene was brought out in the annual institute of the mental hygiene committee. Mrs. Luther H. Kice of Garden City is chairman of the institute committee. Three sketches were given by Theater Guild actors.

The luncheon meeting in November was the anniversary meeting. An all-day session was held November 30. After a box luncheon, members made dressings for the Nassau County cancer clinics.

Oneida. The last auxiliary meeting was held at the Rhoads General Hospital in Utica A delicious luncheon was served, followed by a tour of the Hospital. Colonel A. J. Canning, Commanding Officer of the Rhoads Hospital, welcomed the guests. Mr. Harold C. Stephenson was the guest speaker. The Wagner-Murray bill was the topic. The next meeting will be in January.

Queens. Reports by chairmen were given at the executive board meeting, which was held at the Medical Building, Forest Hills. The election of officers took place November 30. Mrs. Thom D'Angelo has charge of the arrangements for tl Installation luncheon to be held December 14, Piette's, Fifth Avenue, in Manhattan. Mr Daniel Swan will install the new officers, and Mr J. Leslie Sullivan, state president, will be the gue of honor. Mrs. James Dobbins, president, ente tained after the last meeting.

Schenectady. Auxiliary meetings are held tl last Tuesday of the month. Mrs. William J. Burn is publicity chairman.

Washington. Mrs. Wallace F. MacNaughton the president of the county auxiliary.

* * *

The need is immediate and imperative: until th Wagner-Murray-Dingell Bill is defeated, writ your letters to your Congressman; get everyone yo know to write.

Every county has had a communication from th State Legislative Chairman, Mrs. A. Madden. W hope that every county has made a special effo to do their part in this most important legislativ problem.

JAPANESE SEEK SUBSTITUTE FOR QUININE

It is inconceivable that Java's natural supplies of quinine would be insufficient to meet the needs of the Japanese and Indonesians. This is particularly true since the Tokyo radio claimed as recently as September 28 that quinine production at Bandung had risen to 172 per cent of the preinvasion output.

In malaria the Japanese officials and soldiers stationed on the conquered Dutch islands have met an enemy they fear as much as dive-bombers or tanks, and rightly so. Since they occupied the Archipelago, the disease has increased alarmingly; it now rages through like a scourge from the northern tip of Sumatra to the Japanese-occupied portion of Dutch New Guinea, hitting the populations of Java, Borneo, Celebes, and other islands. Especially in Celebes the Japanese have been battling against the tropical disease with all their might—mainly because their own armies are badly affected by it. Here they evolved a system of sending malaria prevention squads, led by three Japanese officials with three Indonesian assistants, throughout the island to investigate the spread of the disease. But only a short time after the Tokyo radio informed the world of this method, Japanese official sources admitted that other ways of combatting malaria would have to be found.

Recently the Japanese proclaimed excitedly they had at last found a remedy: Dr. T. J. Maingoola of Medan, Sumatra, had "discovered a medicin concocted from a plant named Cassia mata, whic is found abundantly in Sumatra and supplies perfect quinine substitute." But shortly there after the Nipponese radio told of a "new" and rathe peculiar weapon for fighting malaria—a tiny fis which is extremely fond of mosquito eggs. Th Japanese proposed breeding an immense number o these fish and turning them loose in mosquito-in fested lakes and swamps; their experts claime this method would wipe malaria out of all the terri tory under their command.

But meantime, no matter the proportions malari epidemics may have attained in the Netherland East Indies, the Japanese—with Java's great reser voir of quinine in their possession—must have som special reason for seeking a substitute. Nether lands authorities are convinced the reason i Japanese fear of losing Java. Dr. Charles O. van der Plas, Chief Commissioner of the Netherland East Indies, now stationed in Australia, hit the nai on the head with this remark: "If the Japanes are looking for a quinine substitute it's a sure sign they don't feel at ease. They must have a definite premonition that pretty soon they will be thrown out of their present holdings."

When a state fails to provide sufficient beds for tuberculosis patients it is committed to a plan that is wasteful, ineffective, and, in the long run, costly.

Tuberculosis is curtailed but little, if at all, by treating only a small percentage of the patients and leaving many open cases in the community to sow the seed for another crop of victims who in their turn will be needing care. If we admit only the advanced cases to give them terminal care, we leave in the homes the hopeful cases until they in turn need terminal care. Halfway measures will not exterminate tuberculosis. A sanatorium bed should be available for every case of active tuberculosis regardless of the stage of the disease. Treatment that will benefit the patient and also serve to shield others by protecting them from infection is the real objective of case finding.—*From The Modern Attack on T.B., by* HENRY D. CHADWICK, M.D., and ALTON S. POPE, M.D.

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Introduction to Physiological and Pathological Chemistry. With Laboratory Experiments. *By L.* Earle Arnow, M.D. Second edition. Octavo of 574 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Cloth, $3.75.

Fingerprints, Palms and Soles. An Introduction to Dermatoglyphics. By Harold Cummins and Charles Midlo, M.D. Octavo of 309 pages, illustrated. Philadelphia, Blakiston Co., 1943. Cloth $4.00.

Reaction to Injury. Pathology for Students of Disease Based on the Functional and Morphological Responses of Tissues to Injurious Agents. By Wiley D. Forbus, M.D. Quarto of 797 pages, *illustrated. Baltimore, Williams & Wilkins Co.,* 1943. Cloth, $9.00.

Internal Medicine in General Practice. By Robert Pratt McCombs, Lt., MC, USNR. Octavo of 694 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Cloth, $7.00.

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Biological Symposia. A series of Volumes Devoted to Current Symposia in the Field of Biology. Edited by Jaques Cattell. Volume X, "Frontiers *in Cytochemistry." Octavo of 334 pages, illus*trated. Lancaster, Jaques Cattell Press, 1943. Cloth, $3.50.

The Biochemistry of Malignant Tumors. By Kurt Stern, M.D., and Robert Willheim, M.D. Octavo of 951 pages. Brooklyn, Chemical Publishing Co., Inc., 1943. Cloth, $12.

The Nature and Treatment of Mental Disorders. By Dom Thomas Verner Moore, M.D. Octavo of 312 pages. New York, Grune & Stratton, 1943. Cloth, $4.00.

Clinical Laboratory Methods and Diagnosis. A *Textbook on Laboratory Procedures with Their* **Interpretation.** By R. B. H. Gradwohl, M.D.

Third edition. Vols. I and II. Quarto of 2,130 pages with index of 100 pages; 726 text illustrations and 57 color plates. St. Louis, C. V. Mosby Co., 1943. Cloth, $20.

Textbook of Physiology. By William D. Zoethout, Ph.D., and W. W. Tuttle, Ph.D. Eighth edition. Octavo of 728 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Cloth, $4.75.

Orthopedic Nursing. By Robert V. Funsten, M.D., and Carmelita Calderwood, R.N., A.B. Octavo of 602 pages, illustrated. St. Louis, C. V. *Mosby Co., 1943.* Cloth, $3.75.

Manometric Methods as Applied to the Measurement of Cell Respiration and Other Processes. By Malcolm Dixon, Ph.D. Second edition. Duodecimo of 155 pages. New York, Macmillan Co., 1943. Cloth, $1.75.

A Textbook of Medicine. Edited by Russell L. Cecil, M.D. Associate Editor for Diseases of the Nervous System, Foster Kennedy, M.D. Sixth edition, revised and entirely reset. Quarto of 1,565 *pages, illustrated. Philadelphia,* W. B. Saunders Co., 1943. Cloth, $9.50.

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Experimental Biochemistry. By George D. Wessinger, M.S., Ph.D. Octavo of 108 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Paper, $1.50.

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Finally, a chapter of about fifty pages is given over to the treatment of nervous or maladjusted individuals.

This book is a magnificent contribution which *should be read by all physicians.*

A. M. Babey

[Continued on page 2444]

A letter at Christmas Time

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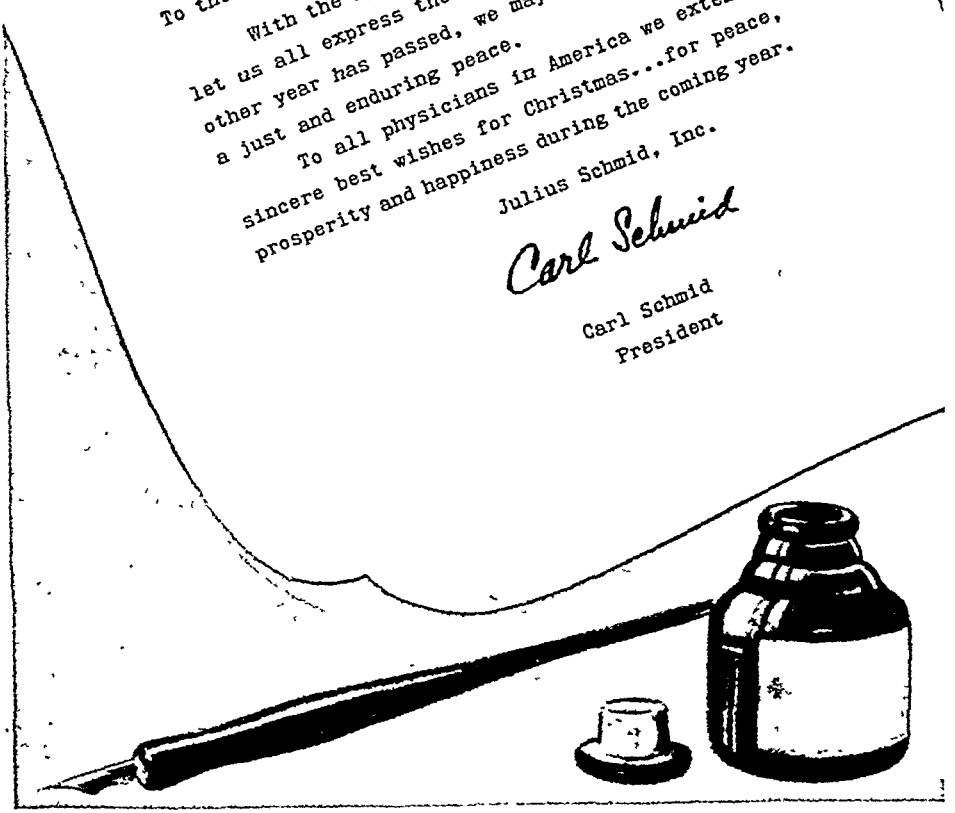
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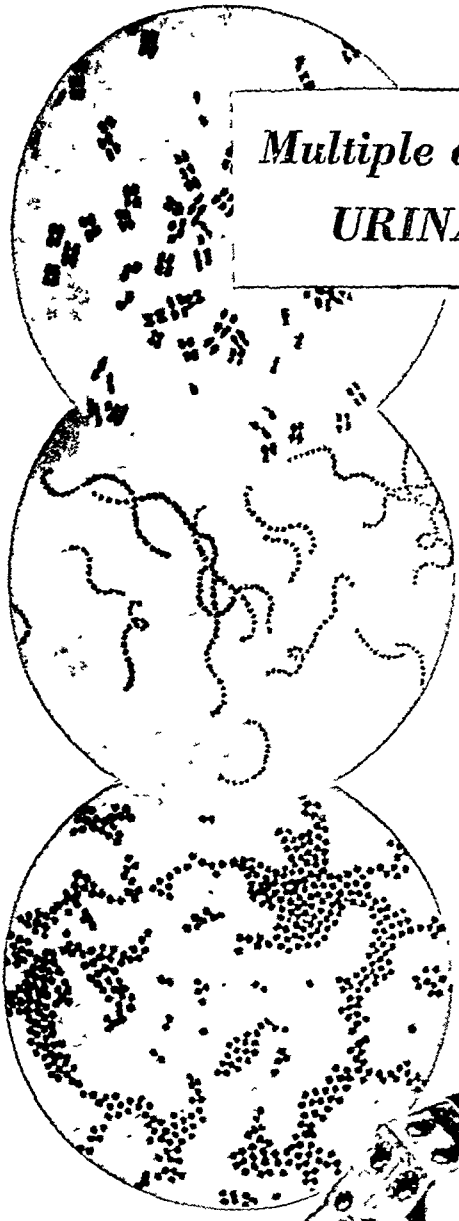
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[Continued on page 2444]



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[Continued from page 2442]

Nutrition and Diet in Health and Disease. By James S. McLester, M.D. Fourth edition, thoroughly revised. Octavo of 849 pages. Philadelphia, W. B. Saunders Co., 1943. Cloth, $8.00.

The fouth edition of this valuable textbook has just appeared. It is one of the most comprehensive books on diet therapy available in the English language. Every disease requiring diet management is discussed briefly, and the therapeutic aspects of the diet are presented in practical detail. The list of foods and analyses are up to date and obtained from most reliable sources. Each chapter has a good bibliography.

The book reads well and can be recommended to the practicing physician.

WILLIAM S. COLLENS

Human Neuroanatomy. By Oliver S. Strong and Adolph Elwyn. Octavo of 417 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $6.00.

In the mere 383 pages and 320 illustrations in this book the authors have compressed a wealth of salient neuro-anatomic data.

The book follows the conventional mode of factual presentation dealing with (1) general neuro-embryology, (2) cellular components, (3) peripheral nerves, (4) the spinal cord and brain stem, and (5) the cerebrum and cerebellum.

The anatomy of the autonomic nervous system and complicated fiber connections of the interbrain are especially well elucidated.

The book is succinctly written; its illustrations are excellent. A long bibliography is included for further study. The book can be recommended without reservation.

THEODORE MELTZER

The Genealogy of Gynaecology. By James V. Ricci, M.D. Octavo of 578 pages, illustrated. Philadelphia, Blakiston Co., 1943. Cloth, $8.50.

Whether for reference or just for the joy of reading, Ricci's book is a delight. Since it fills a great need, obstetricians and gynecologists will welcome the volume. It is more than a collection of names and data; the vast expanse of history is deftly and brilliantly outlined as well. The book is a mine of information on the names of those first to use common terms like linea alba, vagina, uterus, and pelvis. A scholarly and distinguished volume.

CHARLES A. GORDON

Clinical Significance of the Blood in Tuberculosis. By Gulli Lindh Muller, M.D. Octavo of 516 pages. New York, Commonwealth Fund, 1943. Cloth, $3.50.

This book represents an exhaustive study of hematology as it applies to clinical pulmonary tuberculosis. Not only are all the facts presented but the historical evolution of the various studies entering into the subject are minutely discussed and documented. While much of the subject matter seems repetitious, there is no denying its thoroughness. The work should prove of value to students of hematology and of clinical pulmonary tuberculosis.

FOSTER MURRAY

A Manual of Clinical Therapeutics: A Guide for Students and Practitioners. By Windsor C. Cutting, M.D. Duodecimo of 609 pages. Philadelphia, W. B. Saunders Co., 1943. Cloth, $4.00.

The information supplied in this manual is concise and clearly presented. Therapy of the various diseases is described in outline form, yet completely. The subject matter seems to be accurate, and it appears that the author culled his material from very reliable sources.

The reviewer recommends this book as a ready reference to all practicing physicians.

C. SOLOMON

Skin Grafting of Burns. By James Barrett Brown, M.D., and Frank McDowell, M.D. Octavo of 204 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1943. Cloth, $5.00.

This single volume with photographs and illustrations is a concise and complete description of the authors' experience in the use of the various skin grafts, as applied in extensive burns. The early care of burns is carefully described, and the various methods of handling the different stages are clearly set forth.

One case is described in detail in which 26 homografts by 26 different donors were used as emergency dressings before the permanent autografts were done. It is interesting to note that the homografts lasted from three to ten weeks.

During these times of war and civil disruptions, of unexplained explosions, of burns and injuries caused by our mechanized life, a book like this, based upon a very large personal experience, is timely. It is recommended to all surgeons who may be called upon to care for severe burns and their more serious later contraction deformities.

MERRILL N. FOOTE

Whooping Cough. By Joseph H. Lapin, M.D. Octavo of 238 pages, illustrated. Springfield, Ill. Charles C Thomas, 1943. Cloth, $4.50.

A reawakening of interest in whooping cough has occurred in the past decade as a result of the advances made in the study of its causation, pathology, prophylaxis, and therapy. As a public health problem the malady is receiving proper recognition as the most serious of the contagious diseases of childhood in the morbidity and mortality that it causes.

It is, therefore, most timely to have a book devoted to the subject of whooping cough. Dr. Lapin's monograph is not only a suitable descriptive text but it contains an adequate, up-to-date digest of all phases of the literature. The literature has been carefully selected and is well presented. The volume is written in an interesting style; the plan followed is most appropriate, and the subject material is most informative. This is a Thomas book and as such is artistic in its printing and binding.

JOSEPH C. REGAN

Injuries of the Skull, Brain and Spinal Cord. Edited by Samuel Brock, M.D. Second edition. Octavo of 616 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $7.00.

The desirability of a second edition of this work at this time is occasioned by the lessons learned so far in the treatment of head injuries in World War II, by the results in the treatment of infections with the sulfa drugs, and by the accumulated experiences with electroencephalography in head injuries.

[Continued on page 2446]

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[Continued from page 2444]

Therefore a chapter on electroencephalography has been added. The chapters on gunshot wounds and infections in particular, and other chapters in general, have been brought into line with present-day thoughts. These changes keep the book in the forefront as an authoritative guide in its field.

IRA COHEN

Textbook of Pharmacognosy. By Heber W. Youngken. Fifth edition. Octavo of 1038 pages, illustrated. Philadelphia, The Blakiston Company, 1943. Cloth, $7.50.

The author defines pharmacognosy as "the science that treats of the history, production, commerce, collection, selection, identification, valuation, preservation, and use of drugs and other economic materials of plant and animal origin." It is quite obvious that the practicing physician has virtually nothing to do with, and therefore has no interest in, this subject. Textbooks on pharmacology supply the little information along these lines that might be of value to the physician who prescribes drugs. It is essentially a book for students of pharmacy, drug analysts, and collectors of crude drugs.

C. SOLOMON

Clinical Parasitology. By Charles F. Craig, M.D., and Ernest C. Faust, M.D. Third edition, thoroughly revised. Octavo of 767 pages, illustrated with 284 engravings and 4 colored plates. Philadelphia, Lea & Febiger, 1943. Cloth, $9.00.

In making available a third edition of *Clinical Parasitology* the authors and publishers have performed a valuable service for all who require authoritative information concerning the animal parasites of man and the diseases to which they give rise. The geographic distribution, biology, life cycles, and host relationships of the parasites are presented clearly and in detail; pathology, symptomatology, diagnosis, and treatment of the resulting diseases are admirably handled. One-fourth of the book is devoted to a consideration of the arthropods of medical importance.

The text is liberally illustrated with drawings, photographs, and maps; synoptic tables on diagnosis, recommended treatment, and teaching aids are provided. An excellent technical appendix contains detailed descriptions of diagnostic procedures. Although designed primarily as a text for medical and graduate students, the thorough and scholarly treatment of the material renders the book invaluable for reference.

ELBERTON J. TIFFANY

Allergy. By Erich Urbach, M.D., with the collaboration of Philip M. Gottlieb, M.D. Octavo of 1,073 pages, illustrated. New York, Grune & Stratton, 1943. Cloth, $12.

If another treatise on allergy were needed at this time, which is doubtful, this volume would be welcome. It is a scholarly exposition of the subject, presenting all the phases of allergy, together with diagnostic procedures and treatments. The principles of allergy, which are still in the twilight zone of knowledge, are discussed at length and may confuse the general reader. The allergist may or may not agree with the author's concepts.

The section on skin allergy is especially good; the illustrations are excellent. The bibliography is extensive; 2,202 citations appear. The book may be highly recommended, especially to allergists.

GEORGE A. MERRILL

Physiological Principles in Treatment. By Sir Walter Langdon-Brown and Reginald Hilton. Eighth edition. Octavo of 323 pages. Baltimore, Williams & Wilkins Co., 1943. Cloth, $3.50.

The great fault of most books on therapy is that they discuss therapy and little else. Usually nothing is said about the reasons for therapy or the physiologic disorders at which medication is aimed. This little volume by Langdon-Brown and Hilton deserves praise for its effort to present fundamental facts and fundamental physiology as related to the use of drugs and other therapy. It tries to explain why certain procedures are advisable or inadvisable. Many helpful facts are presented. The volume is sound and conservative.

A. BABEY

Synopsis of Diseases of the Skin. By Richard L. Sutton, M.D., and Richard L. Sutton, Jr., M.D. Duodecimo of 481 pages, illustrated. St. Louis, C. V. Mosby Company, 1943. Cloth, $5.50.

This small book is truly a synopsis of the author's excellent text on dermatology and will prove to be a most adequate, helpful handbook for those who want a ready reference for skin diseases.

The first fifty-five pages of text are devoted to anatomy, physiology, chemistry, etiology, etc., and are extremely valuable, for all that is new in the subject has been included therein. The tabulations of anaphylaxis and human allergy are excellent; the page on regional distribution of common dermatoses is extremely helpful to the uninitiated.

All of the usual dermatoses are listed, described, and discussed briefly with correct treatment indicated. Many things stand out as highlights in this book, among them the discussion on contact dermatoses, industrial dermatoses, and infantile atopic dermatitis. Several pages are given over to outlining eruptions due to drugs.

There is a wealth of excellent photographs, many more than the usual number for so small a book.

The reviewer heartily recommends this book to the student and the general practitioner.

E. ALMORE GAUVAIN

Sex Fulfillment in Marriage. By Ernest R. Groves, Gladys H. Groves, and Catherine Groves. Octavo of 319 pages. New York, Emerson Books, Inc., 1942. Cloth, $3.00.

This book presents in clear, non-technical language and without a hint of prudery an excellent guide to the solution of the common physical and psychologic problems which so often prevent sex fulfillment in marriage in the culture of our times.

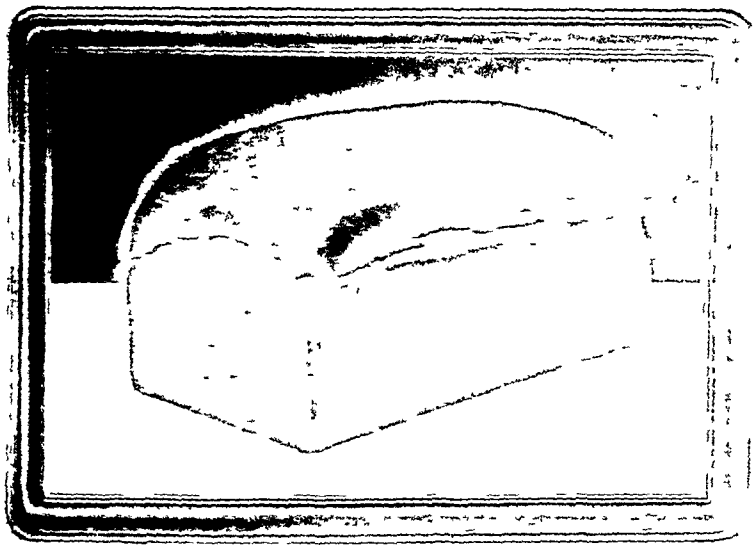
By an avoidance of the spicy material from abnormal psychology which so often enlivens the pages of books intended as "marriage guides" and by emphasis on the "normal" problems of "normal" people, the authors have provided what should be one of the most useful books of its kind for both the physician and the layman.

ARTHUR SHAPIRO

Diagnosis of Uterine Cancer by the Vaginal Smear. By George N. Papanicolaou, M.D., and Herbert F. Traut, M.D. Quarto of 46 pages, illustrated by color plates. New York, Commonwealth Fund, 1943. Cloth, $5.00.

The authors present a new simple technique for the early recognition of carcinoma of the uterus. Routine vaginal smears are prepared and studied

[Continued on page 2448]



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FLEISCHMANN 1868-1943—75 YEARS OF GOOD YEAST FOR GOOD BREAD

[Continued from page 2446]

for the presence of malignant cells. The cytologic characteristics of benign as well as malignant cells that may be found in vaginal smears are illustrated in detail in eleven colored plates of drawings and photomicrographs. This atlas should stimulate interest and give valuable assistance in the use of this technique.

ALEXANDER H. ROSENTHAL

Tables of Food Values. By Alice V. Bradley, M.S. Quarto of 224 pages. Peoria, Ill., The Manual Arts Press, 1942. Cloth, $3.50.

Almost everything that persons who are planning diets for ordinary purposes would want to know about food value is contained in the two main tables which comprise this book. The first lists the food values in terms of clearly defined average portions. The second gives the food values in terms of one-hundred gram portions.

The main part of the book is preceded by a simple explanation of each food component and succinct advice on diet calculation and menu planning. The format of the book is excellent. It is a simple matter to find one's way about these extensive and intensive tables.

ETHEL PLOTZ BERMAN

An Atlas of the Basal Ganglia, Brain Stem and Spinal Cord. By Henry Alsop Riley, M.D. Octavo of 708 pages, illustrated. Baltimore, Williams & Wilkins Co., 1943. Cloth, $13.50.

This is the type of volume for which teachers and students have long waited. It fills in the gap that has made difficult the visualization of microscopic structures with macroscopic functions, and makes easier an understanding of their spatial relationship. This has been an obstacle in the past, unless one were a student of the subject; to others, evident only after painstaking scrutiny of illustrations and correlation with the anatomic specimen. The numerous large size photographs of serial sections, in both the horizontal and sagittal planes make such a study simpler, and should prove a valuable aid to every physician who feels lost when discussing anatomy and physiology of the nervous system in his clinical practice.

A. M. RABINER

A Synopsis of Clinical Syphilis. By James Kirby Howles, M.D. Duodecimo of 671 pages, illustrated. St. Louis, C. V. Mosby Co., 1943. Cloth, $6.00.

This book is, as the title indicates, a brief but complete coverage of the whole field of syphilis. The first nine chapters are devoted to the general considerations of syphilis, the next eleven chapters cover symptoms and regional syphilis, and the last four chapters are used to discuss the familiar and public-health aspects of syphilis.

The book contains 586 pages of reasonably small print, so that it may be seen that there is ample coverage of most aspects of the subject. This book will give the information necessary to diagnose, understand, and intelligently treat syphilis, unless one is particularly interested in some minute detail of some phase of the subject. On the whole, it is a satisfactory book which accomplishes its purpose in a thorough manner.

J. C. GRAHAM

Surgical Care. A Handbook of Pre- and Post-Operative Treatment. By R. W. Raven. Duodecimo of 271 pages, illustrated. Baltimore, Williams & Wilkins Co., 1942.

This small handbook deals with the whole subject of pre- and postoperative treatment in a rather brief manner, including illustrations.

The author's idea was to present a handbook for ready reference. He has covered the field exceptionally well without including all the minute details one would expect to note in dealing with various operative conditions.

RALPH F. HARLOE

Gastro-Enterology. By Henry L. Bockus, M.D. Vol. 1, **The Esophagus and Stomach.** Octavo of 831 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Three volumes to be published. Price of set, $35.

This book is the first of a series of three volumes which will cover the entire subject of gastroenterology. If we take this first volume as a sample, the complete work will not only be the most complete and authoritative work on gastroenterology yet published, but will be an outstanding contribution to medical literature as a whole. The arrangement of the material is logical and understandable; the illustrations are simple and clear; the text is written largely in the first person, which makes, it interesting and convincing. The whole work is the culmination of the author's many years of experience in post-graduate teaching of [illegible] during which he has learned the [illegible] ties. This book has the [illegible] only complete but practical.

A. F. R. ANDRESEN

Handbook of Tropical Medicine. By Alfred C. Reed, M.D., and J. C. Geiger, M.D. 16 mo. 188 pages. California, Stanford University Press, 1943. Paper, $1.50.

This volume is designed as a pocket handbook synopsis of tropical diseases, purporting to cover the more important protozoan, helminthic, spirochetal, rickettsial, and virus diseases of the tropics, as well as bacillary dysentery, cholera, plague, diseases of the skin, nutritional disorders, and disorders due to excessive heat. There are no illustrations. Amebiasis and malaria are fairly well handled. Discussion of the pathology, pathogenesis, and the nature of the disease is omitted in the consideration of the helminthic infections. This work would appear to be of limited value to either the experienced physician or the novice.

ELBERTON J. TIFFANY

Health and Physical Fitness. By I. H. Goldberger, M.D., and Grace T. Hallock. Octavo of 595 pages, illustrated. Boston, Ginn & Co., 1943. Cloth, $1.92.

The authors, both of whom are active in the field of health education in New York City, have written this book "to help American youth to be strong and healthy in body, sound in mind, firm and zealous in morale, and well balanced in personality."

This book is logically arranged in four parts, each subdivided into chapters which they call "units." The first part deals with the anatomic and physiologic equipment of the individual, while the second part describes his mental setup or personality. Next, the desirable health conditions of an environ-

[Continued on page 2450]

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*A New Type of Medication to be used in Bronchial Asthma and other Allergic Conditions.—*New Eng. J. Med.* 223:843-846, 1940.

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[Continued from page 2448]

mental or community nature are discussed. The book ends by pointing out some of the future problems which youth must be prepared to meet, such as choosing a career, the care of the child, and the conquest of disease.

Questions appended to each chapter enable the student to check his knowledge gained from the subject matter.

ALFRED E. SHIPLEY

Clinical Diagnosis by Laboratory Examinations. By John Kolmer, M.D. Octavo of 1,239 pages, illustrated. New York, D. Appleton-Century Co., 1943. Cloth, $8.00.

Clinical Diagnosis by Laboratory Examinations by John A. Kolmer should prove to be a notable contribution to medical literature and of continuous use to the clinician. It is written along a new line, presenting laboratory information to the physician from his, rather than from the laboratory's, point of view.

The first part is devoted to the clinical interpretations of laboratory examinations, in which the results of the tests are grouped and discussed first from the normal and then from the abnormal aspect. Tables are included which at a glance reveal the implications reflected by deviations from known standards. This in particular should prove of great value to the busy clinician, especially the general practitioner.

In Part II, under the subject of practical applications of laboratory examination in clinical diagnosis, the various diseases are grouped together with the laboratory examinations indicated in each, and a discussion of the significance of the results of each test.

In Part III the technic of laboratory examinations is described succinctly, clearly, and adequately.

This book should find its place on the desk of almost every physician, be he a specialist or general practitioner, since it contains all the information not, as a rule, readily available at a moment's notice, relative to the significance of laboratory reports, the indications of tests in specific diseases, and the technic of doing the tests, especially if they are to be done in the physician's office. The author is to be congratulated on having nurtured the seed of a valuable practical idea to complete fruition.

MAX LEDERER

Manual of Fractures. Treatment by External Skeletal Fixation. By C. M. Shaar, M.D., and Frank P. Kreuz, Jr., M.D. Octavo of 300 pages, illustrated. Philadelphia, W. B. Saunders Co., 1943. Cloth, $3.00.

This book on fractures presents the subject entirely with the idea of popularizing the treatment with external skeletal fixation.

The authors report 157 cases treated successfully by this method, citing the advantages over the standard methods, especially under difficulties encountered in the naval and military services in wartime. It is significant that this method permits motion in the adjoining joints.

It should be of special value in the treatment of compound and comminuted fractures, and also in fractures at or near joints, where prolonged immobilization would tend to result in permanently stiff joints.

A comparative study by a number of surgeons in civilian life should determine the true value of this treatment, its advantages and disadvantages.

N. H. RACHLIN

The Medical Clinics of North America. July 1943 (Mayo Clinic Number). Octavo. Illustrated. Philadelphia, W. B. Saunders Co., 1943. Published bi-monthly (six numbers a year). Cloth, $16 net; paper, $12 net.

A number of timely topics are carried in this number of the clinics, which is devoted exclusively to physical therapy. The more important ones are on the Kenny treatment for poliomyelitis, therapy of vascular diseases by Allen, backache, nerve and spinal injuries in wartime. Hypothermia in military practice is covered briefly by Lieutenant Fralick.

A. M. BABEY



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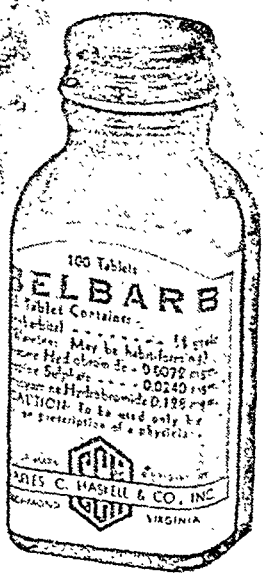
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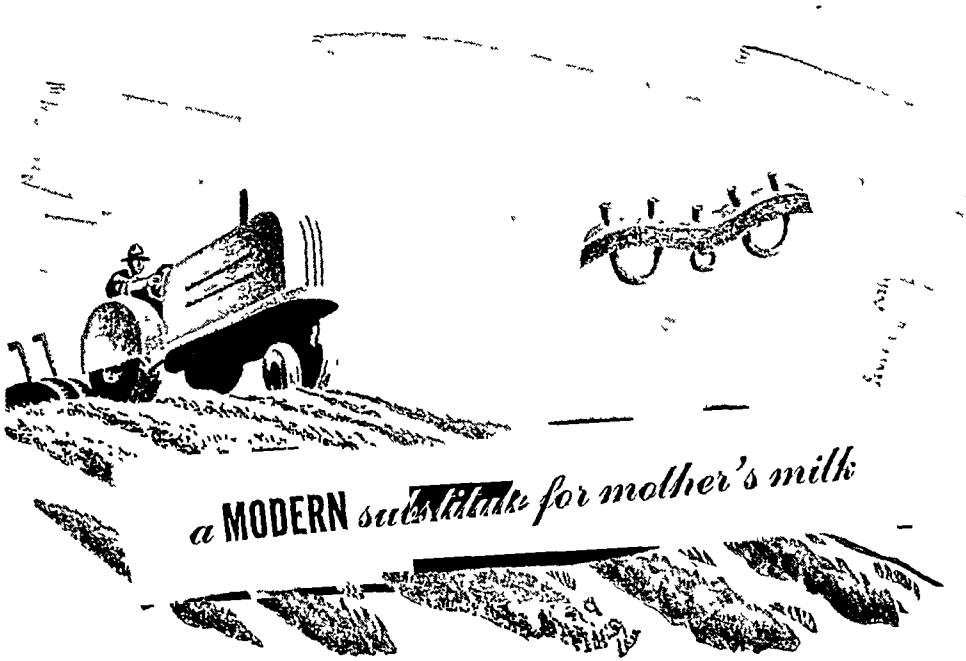
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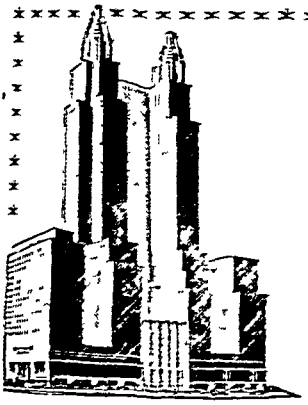
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ie American Red Cross, 4-H Clubs, health asso- ons and nutrition leaders in twenty-six states iow making use of *Nutriton Notes*, according to ent news item.

itrition Notes is a book of eight songs, written, biled, and illustrated in color by science and art nts at Sarah Lawrence College. Of particular est to children, the song book is an outgrowth ie nutrition work and the United Nationalities am developed by the science students in the nunity.

BALLOON JUICE: If you haven't heard, "balloon juice" is the modern terminology for helium, one of the rarest of elements. With the discovery of a deposit of this gas in New Mexico which may prove to be the world's greatest source of supply of this versatile element, scientists are beginning to envision many new uses for it in the post-war era. Particularly, is it a boon, in preventing dreaded caisson disease in deep sea diving work.

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At that rate a family of twelve youngsters would devour from $1,452 to $1,572 worth of food each year.

Wonder how the head of that family, earning say $1,200 a year, manages to find something for his own dinner pail.

But let's take a less critical view of the figures. Stop to think of it—less than fifty cents a day to feed those ravenous, healthy American youngsters is almost a miracle. Yet, that's what it works out to!

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* * *

BOOTBLACK SHORTAGE: GI shoes at *Bainbridge Naval Training Station, Md., are* feeling the pinch of manpower shortage. Last w naval authorities advertised for two bootbla wistfully pointing out: "One of our two boys had here last summer saved up enough money t to college."

* * *

SOMETHING'S WRONG: The Army is return $13,163,519,000 that was appropriated to it. Navy, too, has more money than it knows what spend it on—so they are returning another inc ceivable figure. All told, Congress expects to s the cost of World War No. 1 by cutting appropr tions—$25,000,000,000. Now, why another W Loan drive?

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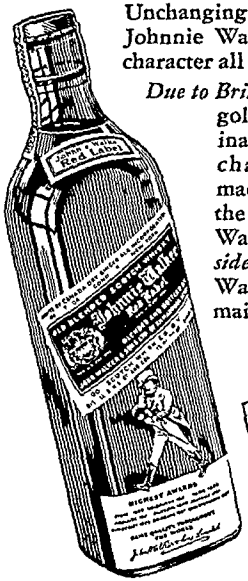
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